

INCOME AND WEALTH

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INCOME AND WEALTH

SERIES I

Papers by

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FUNCTIONS AND CRITERIA OF A SYSTEM OF SOCIAL ACCOUNTING

by Richard Stone

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I. THE SOCIAL ACCOUNTS AND THE CLASSIFICATION OF TRANSACTIONS

A SYSTEM of social accounting is a practical means of describing what is taking place in an economic system insofar as this can be expressed in terms of transactions between a set of accounts drawn up on the double-entry principle. If we possess such statements for a number of time periods or geographical areas there arises the problem of expressing them in terms of the prices ruling in a single period or area. In this paper however I shall concentrate on the problems of dealing with one area over one time period.

An economic system embraces three basic forms of activity which we may term production, consumption, and adding to wealth. Production may be defined as bringing into being goods and services on which members of the community or the community as a whole through its elected representatives set a valuation. Consumption may be defined as the using up and wearing out of the fruits of production and adding to wealth may be defined as the preservation of the fruits of production for consumption or for contributing to consumption later on.

A transaction, recorded in terms of money, shows the sum due from one point in the system to another point in the system. There may be some precisely defined good or service due in respect of this sum, as in the case of a purchase, or there may not, as in the case of a gift or a tax. A transaction may take place between different transactors as in the case of a purchase by a customer from a shop, or it may be internal to one transactor as in the case of the provision for depreciation by a manufacturer which will be debited to his operating statement and credited to his depreciation fund. In the former case there will normally be an objective market transaction which may in principle be recorded by each transactor. In the latter case the valuation of the transfer will not be made on any market but will have to be assessed on the basis of appropriate principles and conventions.

I have stressed the fact that a system of social accounting is a practical means of description. It therefore embodies the classification of transactions which the investigator considers useful for whatever his purposes may be. The basis of classification is not and cannot be settled by the accounting system because such a system can be set up to reflect any set of self-consistent principles that can be devised. The essential function of the accounting approach from this point of view is to ensure self-consistency in the classification of transactions, that is to make certain that the classifications adopted do not have undesired results. For example suppose we wish our classification to yield among other things the identity of saving \equiv investment for a single closed economy. Then if we treat death duties as a current receivable by the government, because it normally thinks of them in that way, we must not at the same time treat them as a capital payable by persons despite the fact that they normally think of death duties in that way. Each treatment may seem reasonable on its own ground, but the two taken together imply that saving \equiv investment + death duties, which is inconsistent with the definition we originally intended to adopt. To obtain consistency we must treat both ends of the death duty transaction either as current or as capital. Whichever we do will be consistent with our original intention, and which we do will simply determine how much saving we attribute to the government as opposed to persons.

This example, though in itself trivial, illustrates I believe the source of the difference in importance attached to the accounting approach by different investigators. Those preoccupied with such questions as whether we should treat death duties as current or capital transactions will speedily see that an accounting approach cannot help them to make up their minds. Those on the other hand who are impressed with the practical difficulties of ensuring consistency will see at once that their case is different and that the accounting approach is the answer to their problem. The objection to this rationalization is of course that the two aims do not conflict. On the contrary, a good system of classification is necessarily a consistent one. In fact consistency is not easy to achieve because the economic system is immensely complicated and the implications for other parts of it of what one is doing in classifying one small piece of it are hardly ever intuitively obvious. Of course we may, if we like, relegate the

accounting structure to an appendix as Marshall did with his mathematics but the main result of this will be to make it difficult for others to see what we are doing. It will not alter the fact that unless we are gifted with superhuman insight we shall in fact have had to make use of an accounting system in deriving in detail our system of classification if, as is necessary, it is to be a consistent one.

To those who approach problems of definition from a theoretical point of view it may seem that in the preceding paragraph I have stressed unduly the complexity of a system of transactions. It is true that we usually begin by setting up theoretical definitions of a general and abstract character, as when for example we define income as the amount which can be spent for consumption in a period without creating an expectation of being worse off at the end of the period than at the beginning of it. Such a theoretical definition avoids by its very nature any statement in terms of the empirical correlates of the object defined. Such definitions are guides to the applied worker which insofar as they are usable will eventually have to be replaced by a statement of the content of the empirical correlate adopted.

In this way the general theoretical definition comes to be replaced by a statement of the transactions in terms of which it can be demonstrated and the principles for defining these transactions. In this way our general definitions come to be replaced by subsets of elements in an interrelated system, the relationships of which must be understood if consistent definitions are to be maintained. From a still more practical point of view we have to translate even this system, which can be drawn up at the theoretical level, into terms which permit of measurement in the actual world. This again has a more and a less theoretical aspect. The former is concerned essentially with the drawing up of a system the elements of which in principle permit of measurement; the latter with drawing up a system the elements of which can be measured by methods which are in fact available to us in practice.

Thus an accounting structure provides a definite statement of the empirical correlates of the theoretical concepts we find interesting. We cannot proceed in a purely theoretical way because we cannot know until we have investigated the matter whether a given theoretical definition corresponds at all closely to the closest empirical correlate that we can set up. Equally we can-

not proceed in a purely empirical way because in many cases we have no natural and inevitable basis of classification. To proceed empirically, even if we recognize the need to record a transaction, would simply mean that we should accept the empirical correlate of someone else's theoretical definition which might be quite unsuited to our purposes and in any case would not avoid the inevitable element of theory.

II. THE SOCIAL ACCOUNTS AS A CATALOGUE OF INFORMATION NEEDED

The second main function of a social accounting system is to provide a catalogue of the information needed for economic analysis and also a means of collecting this information. While it is right to think of a system of social accounting as composed of the money measures of the transactions which enter into it, it can readily be seen that where possible a measure of quantity and a measure of price appropriate to the transaction can find a place in the system of classification. The systems of social accounting actually presented at the present time are of course in a very highly condensed form, all transactors and transactions being grouped into a comparatively small number of classes. This however is due to the imperfections of available statistical information, and also to the fact that these systems are intended to present a statement of economic structure in as concise a form as possible. The system itself may be elaborated indefinitely by increasing the number of classes of transactor and transaction until each transactor and transaction has a class to itself. The simplified versions at present produced represent the common statistical technique of the reduction of data, but they can easily be elaborated to show the precise relationship between the individual transactions of the system and the aggregates which are presented and found useful in economic analysis.

The help which a system of social accounting can give to the collection of economic information is simply that it provides a set of questionnaires appropriate to each type of transactor which can be used as the basis for a sampling survey of that type of transactor, with the knowledge that the information so obtained will fit in with similar information collected from other types of transactor. By this means we may hope to collect information on all forms of economic transaction on a consistent basis, and also, by the adoption of sampling methods, to reduce

the cost at the same time that we improve the scope of the collection. We also have a means for calculating the sampling error of the estimates that are made and of improving the reliability of these estimates by a full realization of the numerous constraints to which they are subject. Thus each account in our final system will provide one relationship between two subsets of transactions and in a complete system all but one of these will be independent. Secondly, if we can make the system articulated, that is to say arrange that any transaction appearing in one account will also appear by itself elsewhere in the system, then the sampling approach will provide two independent estimates of each element of the system, thereby permitting a further adjustment of the observations and a consequent reduction of error. Thus while it should be possible to reduce the purely sampling error of the estimates to unimportant proportions it must of course be recognized that other sources of error are likely themselves to be important; but these sources of error are equally important in the existing methods of collecting economic information and their probable effect on the sampling design would be to give a preference for the collection of certain information from one type of transactor rather than another. For example, by comparison with national totals it appears that an item such as dividends and interest may be grossly underestimated by a sampling survey of the income of recipients.¹ All that this means however is that it is probably difficult to get truthful answers on the question of the amount of income received in this form from the recipients; but equally obviously it is possible to get reliable information from the businesses which in fact pay out dividends. A sampling survey of the type I have outlined could make use of existing knowledge of the most reliable sources from which to obtain certain information.

III. THE SOCIAL ACCOUNTS AND THE PRESENTATION OF ECONOMIC INFORMATION

The final function of a system of social accounting which I shall consider is the provision of a systematic summary of economic transactions useful for teaching, analysis and policy. Experience seems to show that from a teaching point of view

¹ See, for example, *Family Spending and Saving in Wartime* (Bulletin No. 822, U.S. Department of Labor, 1945), p. 43.

there are great advantages in presenting national income and expenditure estimates and estimates of transactions generally in the form of a simple closed accounting system, because in this way the relationships of the parts to one another are immediately displayed. It is no doubt true that the principles and functions of classification normally adopted nowadays leave something to be desired from the standpoint of the welfare theorist, but this is really a separate question and the same estimates would not be better but simply less intelligible if they were not presented in an accounting form. Similar considerations apply if the question of presenting systems of transactions is considered from the point of view of economic analysis and policy. The analysis of economic change cannot get very far without a clear statement of the relationships between the different classes of transaction. This indeed is the purpose of such familiar economic identities as that $\text{income} = \text{consumption} + \text{saving}$ and that $\text{saving} = \text{investment}$. Between these identities and the untransformed equations of the corresponding accounting system there is a many-one relationship; that is to say the equations of an accounting system are simply the formal economic identities written out in a particular way. The familiar identities which I have just mentioned correspond to an extremely simplified accounting system,¹ so that by elaborating this simple system to a realistic degree of complexity we can readily obtain the identities needed to describe an actual economic system in practical terms. Again, from the standpoint of economic policy, interest usually centres around the relationships between transactions rather than around the transactions themselves. For example, the central feature of an anti-inflation policy can be put in the form of the best means to obtain sufficient saving to finance investment without a serious rise in prices. The method of relating government budgetary policy to other factors in the national economic system presupposes that the magnitude of the problem can be gauged by relating items in the government's budget to those in the accounts of the nation as a whole.

¹ For an elaboration of this question see section VI of my article 'Social Accounting, Aggregation and Invariance' which appeared first in *Cahiers du Congrès International de Comptabilité* (1948) and has since been reprinted in French in *Économie Appliquée*, No. 1, January-March 1949, pp. 26-54.

IV. THE ADVANTAGES OF A SYSTEM OF SOCIAL ACCOUNTING

The advantages of a system of social accounting, which have already been set out briefly in an earlier work of mine¹ and in a paper by Messrs. Gilbert, Jaszi, Denison and Schwartz,² can now conveniently be summarized under the three different principal functions which I have described above.

1. Classification of transactions

(a) An accounting approach provides a powerful means of handling the problems of consistency in definitions when we pass from general theoretical definitions to detailed descriptions of their empirical correlates.

(b) An accounting approach provides a meeting-place for economic theory and practical measurement. To be successful a classification of transactions must satisfy as far as possible both theoretical and practical criteria at the same time. By means of an accounting approach the practical implications of any desired theoretical system can readily be worked out in detail.

2. A basis for collecting economic information

(a) An accounting approach indicates what information must be collected and how it must be arranged in order to realize in numerical terms any particular theoretical system capable of such realization.

(b) An accounting approach provides a basis for collecting economic information by means of sampling surveys of the different types of transactor. This basis offers the possibility of better coverage, increased accuracy, the estimation of sampling error and reduced cost.

(c) An accounting approach enables the most efficient use to be made of the information available by bringing to light the many relationships connecting elements in a system of transactions. thus providing a basis for the adjustment of the observations.

¹ See the appendix to *Measurement of National Income and the Construction of Social Accounts* (League of Nations Studies and Reports on Statistical Methods No. 7, 1947), chapter IX.

² See 'Objectives of National Income Measurement: a Reply to Professor Kuznets' in *The Review of Economics and Statistics*, Vol. XXX, No. 3, August 1948, pp. 179-95.

3. *The presentation of information on economic transactions*

(a) An accounting approach seems to provide the best means of showing the structure of an economy and in this way contributes to a better understanding of the way in which its parts are related and the way in which it works.

(b) From a teaching point of view experience seems to show that an accounting approach provides a better means of describing and explaining national income statistics than any other that has been suggested. It is also the best means of explaining the economic identities which have played such a large part in recent economic literature.

(c) In connexion with government policy an accounting approach is particularly useful in forecasting, since an attempt to forecast the elements of an interrelated system puts some restriction on each element since certain equations have to be fulfilled. Of course more restrictions can be put on the elements if anything is known about the way in which the system behaves in addition to its formal properties.

(d) In connexion with international comparisons a system of social accounting is helpful in showing how the economic structures of different countries are related and in providing a basis on which the statistical information for different countries can be improved in comparability.

V. ECONOMIC FUNCTIONS AND THE STRUCTURE OF ACCOUNTS

In discussing the criteria of a system of social accounting the important thing is to explain how the constituent transactions are to be defined and the principles on which they are to be classified. In this way we can show how the different transactions are related and also demonstrate the way in which the operational definitions adopted are related to the ideal definitions of theory.

In order to describe succinctly what is taking place in the economic system in terms of transactions it is first necessary to observe what functions such a system performs. The basic functions, production, consumption and adding to wealth, have already been introduced and may be used as the essential features of any system of classifying transactions. Reflection shows that no one transacting entity (or transactor) is concerned simply with one form of activity; rather each transactor is concerned

in principle with all three. Accordingly for each transactor we will set up a system of three accounts. The first account, to be called the operating account, brings together all the transactions of the transactor concerned which are connected with its production or operating activity. By setting off the costs incurred in respect of the sales of goods produced or services rendered against the proceeds of these sales we define in a way which permits of measurement the profit (or income from the productive activity) of the transactor. The second account, to be called the appropriation account, brings together all the transactions of the transactor concerned which are connected with its consumption or non-operating current activity. By setting off the expenses for current (consumption) goods and direct taxation against the operating profit and other forms of income accruing to the transactor, we define in a way which permits of measurement the saving of the transactor. The final account, to be called the resting account, indicates the sources and uses of the capital funds available to the transactor. On the incoming side this account shows the saving brought down from the appropriation account together with any operating provisions such as provision for depreciation brought down from the operating account, and also any new contributed money capital or new borrowing that may have arisen during the period. On the outgoing side there will appear total asset formation in fixed capital and inventories, together with financial items of a capital nature such as lending, security investment, the change in current net indebtedness and the net change in bank and cash balances.

It can be seen in a general way, and will be demonstrated in more detail in the following pages, that this method of arranging the transactions of any transactor accords with the three forms of economic activity mentioned above. The first account brings together all transactions connected with productive activity, and shows the gain to the transactor derived from this. The second account recognizes the fact that the transactor may receive spendable income from sources other than its own productive activity, for example, either as a gift or because of participation in the productive activity of other transactors, and it shows the way in which the total of all these elements of income is distributed between consumption expenditure, transfers to other transactors, including direct taxation payable to the state, and

the net saving of the transactor concerned. Finally, the last account shows the additions to wealth made by the transactor and the means which have been used in financing them.

It should also not be difficult to see that this arrangement accords, broadly speaking, with ordinary accounting notions. In form the operating account here corresponds to the trading account or operating section of the profit and loss account of conventional private accounting. In a similar way the appropriation account here corresponds to the non-operating section of the profit and loss account of private accounting, while the resting account here corresponds to the difference between the opening and closing balance sheets of the transactor. The difference between the economist's and the accountant's approach to these problems lies not so much in any difference in the basic structure of accounts as in the definitions adopted for some of the transactions, notably provision for depreciation and inventory valuation and adjustment, where the entries are not given objectively but have to be estimated on the basis of some principle or convention.

So far I have outlined the position for an individual transactor. Before going on to a detailed discussion of the entries in the accounts of individual transactors it is convenient to notice what will happen if we consolidate accounts of the above form over all types of transactor. If we take a very simple case of a closed economy with no government and with eternally durable capital equipment which does not need to be depreciated, we may say that the incoming side of the first type of account, that is the consolidated operating account for the whole economy, will contain only sales proceeds, arising either from the sale of consumption goods to appropriation accounts, or of capital goods to resting accounts. The outgoing side of this account will show nothing but gains or incomes arising from economic activity, since all purchases of materials and services between operating accounts will disappear on consolidation. Writing the outgoing entries on the left-hand side we have, in the usual Keynesian notation,

$$Y=C+I$$

or, in words, income (or product) equals consumption plus asset formation (or investment). With the same simplifications we can say that the second or appropriation account will contain on the

outgoing side purchases of consumption goods and saving, and on the incoming side income received from economic activity. Any gifts or transfers between different transactors will have disappeared on consolidation. Thus, in the Keynesian notation, we may write for the second account

$$C+S=Y$$

Again for the third or resting account we shall have on the outgoing side asset formation (or investment) and on the incoming side saving. Any lending or borrowing, whether long term or short term, and in whatever form, from one transactor to another, will cancel out on consolidation, and so we may write

$$I=S$$

Since the system I have described is a closed one, only two of the three accounting identities are independent and it will be seen that the three equations above represent the three forms in which the two basic independent Keynesian equations can be written. In other words the Keynesian equations when written down in a certain order represent the relationships between transactions occurring on each of the three forms of account which I have distinguished. Accordingly it would seem, in the simple case at any rate, that whether we look at the matter from the standpoint of the individual transactor or the economy as a whole, whether we look at it from the standpoint of the economist or the accountant, the simple structure of three accounts for each transactor does in fact represent the structure which is adopted in practice. What remains to be discussed reduces either to the principles of defining the entries or to the amount of detail which is to be retained in presenting the system of transactions. Let us consider the last and the more simple problem first.

VI. THE AMOUNT OF DETAIL TO BE RETAINED IN AN ACCOUNTING SYSTEM

This question has two aspects. First, what different transactors are we going to recognize as distinct, and how are we going to group them: second, what subdivision if any are we going to recognize in the transactions between any two accounts of any of the transactors? In classifying transactors we shall obviously want to keep enterprises, households and government

administrative agencies separate, and indeed we may want a good deal of subdivision in each of these main sectors. From a theoretical point of view however it would appear convenient for some purposes to set up a sector for each type of service which is rendered in the economic system, and for which accordingly there is a centre of economic decision. On this basis we should think of the set of accounts for enterprises, households and government administration as being concerned essentially with business services or decisions, household services or decisions and government services or decisions, and to these we should have to add further sectors for labour services or decisions and lending services or decisions. These last two services may be restricted without loss of generality to those rendered to the economy under investigation, since labour and lending services rendered abroad may be consolidated in the account for the rest of the world.

As matters stand today these last two sectors, home labour and lending services, have very little independent existence and are always thought of as consolidated elsewhere. For example, the operating account of labour service is normally thought of as consolidated with the operating account of enterprises; the appropriation account of labour service is thought of as consolidated with the appropriation account of the households in which the labourers live; and the resting account of labour service is not set up because it is assumed that there is no expenditure involved in producing and maintaining labour services. These simplifications however are largely a matter of convenience which dictates that there are no costs in obtaining the earnings of labour, so that the whole of these earnings can be regarded as spendable income, and that there is no capital expenditure which has for its object the provision and maintenance of the capacity of individuals and the community at large to provide labour services.

Thus we end up with five sectors: enterprises, households, government, labour, and lending, with the proviso that the last two may not be of much importance and indeed would essentially be dummies if introduced into contemporary statistical presentations. Within each sector we may desire to make a subdivision on an industrial or regional basis and also, if we think of enterprises as including the enterprises of public authorities, to distinguish in this sector at any rate between private and

public authority enterprise. In the case of households however we may wish to make a classification on the basis of the size of household income. The principle problems involved in making these more detailed classifications depend on the way in which we allocate transactors to industries, to regions and to size groups. The first of these questions at any rate is the subject of an extensive literature, and I do not propose to discuss these problems here.

This brings us to the second aspect of our problem, namely what subdivision shall we need of the transactions themselves? A certain amount of classification will be achieved in that payables from account A to account B will be kept separate from payables from account B to account A, and of course from all payables involving any other account. More however is needed. For example, households buy a great variety of goods and services from retail shops, and if we are to obtain a breakdown of these purchases we must subdivide them by product and not simply lump them together. Again, the government may make a number of different kinds of payment to the operating account of a business. It may on the one hand purchase the products of the business while at the same time giving the business a subsidy. Despite the fact that both these transactions appear as payables from account A to account B in our system we should certainly wish to keep them distinct.

The most important difference between transactions rests on whether they are unilateral, i.e. with no specific economic return, as in the case of a gift or a tax, or bilateral, in the sense that there is such a return, as in the case of a purchase of a good or a service, or of an asset or financial claim. Bilateral transactions can obviously be subdivided into a large number of classes until the final point is reached in which every specific good or service transferred from one transactor to another is recognized as a separate consideration. Unilateral transactions, on the other hand, do not seem in general to require much further subdivision, since the main distinctions which arise are already reflected in the transactions between different pairs of accounts. This is not always the case however and we may wish, for example, to distinguish between different kinds of operating provision made by an enterprise, e.g. provision for depreciation and provision for bad debts, or between different types of taxes payable by an enterprise or an individual.

VII. THE PRINCIPLES OF DEFINING THE ENTRIES IN AN ACCOUNTING SYSTEM

I propose now to return to the more difficult of the two problems mentioned above, namely the principles of defining the entries in the accounting system. The items which we choose to reckon as incomings and outgoings on the production or operating account of any transactor, and the way in which we define these entries, will determine the gain or income from its productive activity. Also, once this gain or profit has been defined, the incomings and outgoings which we show in the consumption or appropriation account, and the way in which they are defined, will determine the saving of the transactor. The treatment of items of these two kinds will entail certain corresponding entries in the resting account which will ensure consistency there.

It might seem at first sight that we could adopt a purely formal approach to questions of this kind. For example, we might say that all goods bought by enterprises and charged to their operating accounts were intermediate goods which would cancel out on consolidation of all operating accounts, while all purchases of goods by households should be classed as final goods and that the latter and only the latter would enter into the national consumption. In fact, however, such a procedure is not entirely satisfactory because there are goods normally purchased by enterprises which are of direct benefit to consumers, while there are also goods conventionally bought by consumers which are solely intended to assist them in their work. Examples of the first kind of good are the coal supplied free to miners and charged to the operating account of the mining company, and clothing supplied to workpeople where it is of such a kind that it can be regarded as a substitute for ordinary clothing and is not of a kind needed in addition to ordinary clothing for the performance of particular tasks. In both these cases it is normally recognized that the employee in fact receives a certain amount of income in kind and an attempt is made to treat the matter as though his actual wage was larger than his money wage by the imputed value of the coal or clothing, while his actual consumption expenditure was larger than his money expenditure by the same sums. The converse case arises where in certain trades it is customary for an employee to provide his own working tools and equipment out of his wages. In this case

we have items such as tools appearing in the consumer's budget which really have no place there, and we attempt to recognize this position by transferring the cost of the tools to the operating account of enterprises employing workmen who provide their own tools and deducting the cost of the tools from the money wages which are paid to them. In this way a readjustment of incomings and outgoings is made between the household account of the workmen and the operating account of their employers, the object of which is to re-define production expenditure and consumption expenditure in a way which more nearly reflects the real position.

If we are not able to devise a purely formal treatment of such items as these, but feel the need to modify the entries which we find in actual accounts we must devise a different approach which will provide us with a guide to the principles on which the modifications are to be made. In the present instance our object is to define the gain from productive activity of an enterprise and its employees taken together. We may do this by going back to the fundamental idea that the income of a transactor (or of several transactors consolidated together) is the maximum value which it can consume during a period and still expect to be as well off at the end of the period as it was at the beginning. On this basis it can be seen that the coal provided free to employees is not a cost of production of the business and its employees taken together and their combined gain must therefore be calculated without deducting the value of this coal as an expense. On the other hand it is equally clear that the tools provided by the employee out of his wage are a cost of the combined productive activity of the business and its employees, and therefore they must be deducted as a business cost in arriving at the combined income of both. An ideal definition of the kind just mentioned provides us with a guide to the meaning we should like to give to income. Our task then is to approximate to this meaning in our actual statistical work.

Having reached a solution along these lines we may devise an accounting structure which will give us a formal distinction of the kind we sought to apply in the first instance. This indeed was the purpose of the suggestion made above that we should set up a system of three accounts, not only for enterprises, households and government administration, but also for labour and lending services as well. By doing this we can credit to the

operating account of labour services the costs to enterprises clearly attributable to the employment of labour, which in the example we are considering will consist of money wages plus the value of coal and clothing received free by the workmen. This effectively is the selling value of the labour services. From this selling value, in order to reach the income or gain of the workmen, it is necessary to deduct any costs which they have incurred, which in the present example would be the value of any tools and equipment which they have to buy out of their wages. The net figure is their income which is available for spending and can be transferred to the appropriation account of labour services.

By setting up the accounts in this way we may be able to see more clearly what we are trying to do and what is involved in attempting to apply in practice the ideal definition of income given above. In many cases however we shall meet with problems to which it seems hardly possible to devise a solution and for which therefore we shall have to fall back on a conventional treatment. A case in point is the cost of the journey to work. The universal practice is to treat this as consumption expenditure if it is paid for by the employee, but as a business cost if for some special reason – e.g. because its premises have had suddenly to be moved as a result of air raids – a business incurs the expense of providing for a time a free transport system for its employees. The difficulty here is to decide what part, if any, of the employee's cost of going to work is an expense which should be debited against his earnings and what part represents spending out of the gain from his work. No means of making this allocation has been devised, and in practice it is assumed that no part of the cost of the journey to work is a business expense. If it were agreed that any allocation of this kind should be made to business expenses it is clear that we should be bound at the same time to reconsider a host of items which are generally considered to be items of final expenditure, and that we should speedily be driven far away from ordinary conceptions of income and consumption. Problems of this kind may however be important if attempts are made to compare communities with very different institutional arrangements – for example, if one wishes to compare the economic position of India or China with that of Britain or the United States of America.

Just as we find it necessary to attach a meaning to gain from

productive activity in order to determine the entries to be shown in the operating account, so we need to attach a meaning to saving to determine the entries to appear in the appropriation account. Saving is usually defined as the excess of income over current outlay. Income has already been defined as the amount which can be spent for consumption in a period without creating the expectation that the transactor will be worse off at the end of the period than he was at the beginning of it, and will include any net sums available for spending in this way transferred from other transactors. It will not include all transfers from other transactors since some of these may not be available for spending in the period.

There remains the problem of defining current expenditure. This will include direct taxes levied on income and other income transfers made by the transactor, together with all consumption expenditure. By consumption expenditure we should like to mean the value of goods and services used up and worn out by the transactor during the period, and we should like to draw a distinction between current and capital expenditure. Only current expenditure, that is to say expenditure the benefit of which is taken up in the period of account, would then be debited against income to yield a figure of saving, and this saving, together with any net borrowing and capital transfers received by the transactor, would finance its net additions to fixed assets and inventories.

In practice this distinction between current and capital expenditure on goods and services is not made along these theoretical lines. What is done in fact is to treat expenditure on land and buildings by final consumers as capital expenditure and to regard the purchase of all other goods and services used for consumption purposes as current expenditure in spite of the fact that many of them have considerable durability. The reason for this is the practical one, that it is not easy to assess a depreciation provision in respect of consumers' durable goods. We should remember however that from a theoretical point of view asset formation is underestimated and consumption overestimated at times when the purchase of durable consumers' goods is increasing.

VIII. THE PRODUCTION (OR OPERATING) ACCOUNT

Let us consider the entries in a production (or operating) account in the light of the theoretical definition of income (or gain) given above. First let us suppose there is no state and consequently no taxes, subsidies or other such transfers. It is a principle of accounting, which I think we all accept, that no income can accrue to an enterprise from current operations, except on the sale of the goods or services which it is its business to produce. On the incoming side of the account we may therefore enter any proceeds from sale or from services rendered. These will not be recorded on a cash basis but will show the sums due to be received (or receivable) under these headings. On the other side of the account we shall show all the costs attributable to the production of the goods sold. These costs will include the value of materials and services purchased from other transactors, and operating provisions set aside by the concern in respect for example of depreciation or bad debts. If we consider the operating account of an enterprise as a consolidation of the operating accounts of the proprietors, together with those who work in the enterprise and lend it money, then all wages, salaries and interest due to be paid will appear as part of the gain; otherwise, if the account relates to the proprietors alone, the wages, salaries and interest will have to be deducted as costs. The former treatment is of course only permissible if the wages, salaries and interest can be assumed to be earned without cost.

There is one further adjustment that has to be made. All the materials purchased and resources expended in processing them may not be matched by sales in the period of account. If more materials are purchased than are used and if more goods are produced than are sold, then the inventory of both materials and finished goods will rise over the accounting period. Any change, up or down, in the inventory over the period will call for an inventory adjustment which, if inventories have risen, we may treat as an addition to selling value or a subtraction from costs incurred. In a world of stable prices the change in the value of inventories (positive or negative) would have to be added to sales proceeds or deducted from costs in order to put the two sides of the account on the same basis.

We have seen above that some adjustment is frequently needed to the figure for wages if it is to represent the gain from labour

services. Apart from such matters the main difficulties encountered in giving effect to the theoretical definition of income arise in the case of the two internal transactions, provisions and inventory adjustment. These problems will now be briefly considered.

Provision for depreciation is probably by far the most important internal provision. From the standpoint of private accounting, the provision to be made each year over the expected life of the asset is calculated on a basis which will yield an accumulation equal to the original cost of the asset at the end of the asset's expected life. Such a calculation based on original cost is intended to preserve the original capital contribution of the proprietors insofar as it is devoted to the purchase of fixed assets. From the standpoint of our theoretical definition of income however such a treatment would not necessarily be adequate under a regime of changing prices, since if income earning power is to be preserved it is essential to ensure that any increased cost of replacing assets shall be provided for. Hence the suggestion has been made by many economists that depreciation provisions should be based on replacement cost. Such provisions might in practice go further than was needed, as would be the case insofar as the depreciation fund was put into investments which themselves rose in value. It is not easy to devise a perfect formula for the calculation of the provision for depreciation implied in the theoretical definition of income; but there seems little doubt that it is possible to get nearer to this concept than does the conventional calculation based on original cost.

The difficulty in making inventory adjustments is again largely a consequence of the instability of prices. The most common accounting treatment requires that inventories be valued at cost or market price, whichever is lower, with the consequence that the inventory adjustment reflects not only the value of the quantitative change in inventories but also an element of price change. To avoid this it is necessary that opening and closing inventories be measured in terms of the same prices, and it has been suggested that the price level to be adopted should be the mean of opening and closing costs. There are however advantages in putting both opening and closing inventories on to a last-cost basis, thereby reflecting the position as it appears in terms of the values at the end of the accounting period.

The excess of the incomings over the outgoings just described

represents the gain from the productive activity of the period and can all be distributed to those participating in the enterprise and spent for consumption purposes without harm to the productive facilities of the enterprise. This description of the entries in the production account is not yet complete however because no account has been taken of the fiscal activities of the state which in most countries are of considerable importance. I refer in particular to the appropriate treatment of taxation, direct and indirect, and subsidies.

The main problem raised by transfers to and from the state is that of deciding which of these transfers should be debited against or credited to the production account. As far as taxation is concerned one answer to this problem is to adopt the usual business convention that those taxes which are assessed on goods and services produced or sold should be debited against the production account, while those taxes assessed on income should be treated as a debit to the appropriation account, since they are not a cost of production, but simply a charge on income, including income from sources other than the production of the transactor concerned when the whole income of the transactor has been ascertained and assessed.

We may approach the question of subsidies in a similar way. We treat as indirect taxes those taxes which add to the cost of the saleable product, and we may define subsidies as sums payable by public authorities with the object of meeting part of the costs of production and assessed either on output or sales or on the input of some important material. Just as indirect taxes tend to raise the prices of the goods on which they are levied, so subsidies will tend to reduce the prices of the goods on which they are granted, since they provide a means of meeting part of the costs of production which do not therefore have to be recovered in the selling price. Thus subsidies may be regarded as negative indirect taxes.

In this sense it will be obvious that not all unilateral payments by government to business enterprises are to be included under the heading of subsidies. Many such payments will be in the nature of relief and should be credited to the appropriation account since their object is not to meet a cost of production but to prevent the producer from starving. This treatment may also be appropriate in the case of government transfers to meet, after the event, such losses as have occurred in a previous period,

since in this case the producer may in effect receive not a grant to meet certain costs but an out-and-out supplement to his income.

In addition to these government grants, which may be regarded as payable into the appropriation account of enterprises, there may be sums paid into the operating account which nevertheless should perhaps not be regarded as subsidies. An example of this is a payment to a producer aimed not at enabling him to reduce his selling price but at enabling him to compete in circumstances where the price is determined by lower-cost competitors. An example of such a payment is the British beet sugar subsidy, the object of which is not to reduce the price of sugar to the British consumer, but to enable the higher-cost British beet sugar producers to stay in business in competition with lower-cost cane sugar competitors abroad. This type of payment is perhaps best treated as a straightforward purchase of goods and services.

As soon as one examines the question of taxes, subsidies and other government grants to business one very soon finds that in practice the position is extremely complicated and that a number of borderline cases arise. These difficulties have led some investigators to wish to get rid of the distinction between direct and indirect taxes and between subsidies and other transfers on the ground that any such distinction must of necessity be arbitrary. I do not agree with this view because I think that the distinction between costs of production and other outgoings can be made in practice in a fairly satisfactory way, and because I think that from the standpoint of economic analysis there are decided advantages in making it. If for example we treat all taxes as appropriation account transfers, then our conception of net product will be made up of all gains to producers arising from their productive effort, plus indirect taxes (minus subsidies). This concept of net product will yield an industrial classification which is very misleading for some purposes since it will give very little idea of the value of resources taken up in each industry, even under normal conditions, when the profit element may be taken as a good indicator of the contribution of enterprise and risk-bearing. The distortion will be particularly great in countries such as the United Kingdom in which indirect taxation is particularly heavy on a comparatively small range of products. We get a much better idea of the proportion of re-

sources devoted to the production of drink and tobacco if we treat indirect taxes and subsidies as distinct from direct taxes and other transfers from government to business, and debit and *credit them to the operating accounts of the industries taxed or subsidized. The same argument can be raised if we are interested in the proportion of national resources devoted to any particular purpose such as personal consumption or goods and services used in waging war.*

It is natural to discuss this account in terms of business enterprises but reflection will show that an exactly similar account may be set up for each sector of the economy. For example, in the case of households the gross proceeds accruing to the operating account will be derived entirely from an imputed sale to the household in question, covering all the goods and services used to maintain the household. On the outgoing side there will be purchases from business, labour and lending services, and there will also be a depreciation provision in respect of any fixed capital (e.g. an owned house) used by the family, and indirect taxes (e.g. rates on a house occupied by the owner). In such an account there is a place for an operating surplus reflecting the elements of gain from household operations (e.g. the net imputed rent of a house occupied by the owner, and the work of housewives and other members of the family), although in almost all countries this operating surplus is set at zero, households being treated as non-profit-making entities and operating activity connected with the owner occupation of dwellings being included in the operating account of enterprises.

A household may borrow either for the purpose of acquiring an asset or in order to meet current expenditure. In the first case the outgoing side of the household operating account will show a certain cost in respect of the interest on the loan, while in the second the interest due may be charged against the household appropriation account. Since it is usually agreed that interest on consumption loans should not appear in the national income, and since the income from the loan will already appear in the operating surplus of lending services, it is necessary that the imputed sale from the appropriation account of households should be so calculated as to yield a component of the surplus on the operating account equal to the negative of the interest paid on consumption loans. This is exactly parallel to the treatment frequently adopted, e.g. in the British national income White Paper,

of showing the interest on consumption loans by public collective providers as a negative income from property.

The operating account for public collective providers is similar to the one just described for households. It brings together *all the costs incurred in the provision of government administrative services*, to give an imputed loss equal to the interest on consumption loans raised by public collective providers. The main source of revenue for this account is a transfer from the appropriation account of public collective providers, but in addition to this there will normally be fees and similar sums due from other sectors of the economy, e.g. special payments made by parents under the public education system.

The government is regarded here as the final buyer of all its administrative services, and no attempt is made to distinguish between services organized for the benefit of business and services to final consumers. As a consequence it is likely to happen that certain intermediate services will be included in the total of goods and services bought by public collective providers, but the inclusion of these services in the total of final expenditure will not lead to an overestimate of that total, since their value will be excluded from one of its other components. For example the cost of police services used in controlling traffic will in part be incurred for the benefit of the road transport industry. Under competitive conditions however the road transport industry will not be able to include an allowance for these free services in the price of its product, so that from the social point of view this product will be underestimated by the value of the policemen's services. As a consequence of including these services in final expenditure by public collective providers the omission will be made good though the distribution of final expenditure between its different components will not be correct. The fact that some of the services of which public collective providers are the final buyers are really intermediate in character does not call for any special adjustment in the accounts of public collective providers except in two circumstances. The first of these arises if we wish to reallocate the total value of final expenditure between its different components, so as to obtain, in terms of the above example, the full cost of transporting goods by road, together with the cost of those services organized by public collective providers which benefit final consumers direct. The second arises if we wish to obtain a measure of the real national product

from the final expenditure point of view. In this case we must recognize that much of the time of policemen is given up to assisting the road transport industry and that, to the extent that this is so, we do not want an indicator for policemen's services, but instead require to add their weight to the indicator for road transport services.

It is sometimes thought that a view need be taken as to whether the community really wants the services organized by public collective providers. The example usually given in this connexion is the activity of the central government in preparing and waging war. From the present point of view these services are on exactly the same footing as any other services for which there is an effective demand. For some purposes however it may be desirable to exclude items of this kind in order to see what has been the movement in a more restricted collection of goods and services available for consumption. Such exclusions are mainly interesting in attempts to compare real income. An attempt may be made to rationalize them in terms of the present accounting structure by saying that at certain times the cost of waging war is a part of the cost of producing ordinary consumer goods and that this part is chargeable to the operating accounts of the enterprises producing ordinary consumer goods and is financed by a subsidy from public collective providers. In this way expenditures on the different items involved in waging war would disappear from the ordinary table of final expenditure and their place would be taken by subsidies. As a consequence only ordinary consumers' goods (if any agreement can be reached on the meaning of this term) would appear in final expenditure, but their weight would be increased by subsidies, to be allocated between them on some arbitrary principle, equal to the costs involved in waging war. Only the ordinary consumers' goods would have indicators in the final expenditure table, so that changes in final consumption would be determined solely by their movement and not by the movement in goods and services bought in the process of waging war.

The operating account for labour service shows gross proceeds from the sale of labour made up of cash wages and allowances, the value of income in kind and the value of indirect taxes levied on wages, e.g. employers' contributions to national insurance funds. These employers' contributions then appear as an outgoing on the other side of the labour service operating

account and in fact, in the conventional treatment, are one of the few costs involved in the provision of labour services, another example being the expenditure on tools and equipment paid out of wages. The excess of gross proceeds from selling labour services over the costs involved yields the operating surplus of this part of the economy and is equal to the conventional figure of wages and salaries. By putting the matter in this way we are provided with a convenient account to which to debit any other costs which it may be thought are involved in the provision of labour services. If for example it was thought that part of the cost of the daily journey to work was a cost brought about by the provision of labour services, then the outgoing side of this account would be the appropriate place to put it.

An exactly similar situation arises with lending services, except that it is assumed that the interest received by this group of transactors is obtained without cost, so that the whole of the gross revenue of this operating account can be regarded as the surplus available for spending by the lenders. This account must not be confused with the operating account of banks or other financial intermediaries, but is additional to them. A convenient way to treat these special types of enterprise has already been discussed at length by D. B. Yntema¹ and myself.²

It is convenient at this point to consider what operating surplus will emerge if the various accounts are consolidated. If all the accounts except foreign labour and lending services (always included with the rest of the world) are consolidated, the operating surplus derived from the system of accounts I have been describing will be the one conventionally adopted. If the operating surplus of the (home) lending service is termed interest and if the operating surpluses of enterprises, households and public collective providers are termed profits, then the former will include interest on consumption loans while the latter will be reduced by the amount of this interest. If those entries in the operating account of the home lending service which relate to households or public collective providers are consolidated with the operating accounts of households or public collective pro-

¹ See 'National Income Originating in Financial Intermediaries' by D. B. Yntema in *Studies in Income and Wealth*, Vol. 10 (1947), pp. 23-50.

² See appendix to *Measurement of National Income and the Construction of Social Accounts* (League of Nations Studies and Reports on Statistical Methods No. 7, 1947), especially pp. 40-41 and 87-90.

viders, then the income generated (apart from interest on loans not for consumption purposes, e.g. mortgage interest) will be zero so far as profits and interest are concerned. The reason is that the operating surplus in the home lending service account will offset the operating losses in the accounts of households or public collective providers. If, again, those entries in the home labour and lending services operating accounts which relate to households and public collective providers are consolidated with the operating accounts of households and public collective providers, then the total income arising on the consolidated account will consist only of wages and salaries paid direct to household and government employees, plus such elements of profit as the surplus on the operation of owner-occupied dwellings, plus interest on loans used to acquire assets and not simply for consumption purposes. Thus the accounting system described here is readily put into the conventional form and reflects the fact that households and public collective providers are normally treated as non-profit-making bodies, in the sense that when their operating accounts are consolidated with the corresponding accounts of those who assist in their activity no income from property emerges apart from the interest on loans used to acquire assets, and the imputed income on such activities as the operation of owner-occupied dwellings.

IX. THE CONSUMPTION (OR APPROPRIATION) ACCOUNT

The consumption (or appropriation) account brings together all those incomings and outgoings which are neither costs nor benefits connected with the productive activity of the transactor (apart of course from the operating surplus) nor are related to a past or future period of account. On the incoming side there appears first of all the operating surplus of the transactor brought down from the operating account, together with all other current incomings such as dividends and interest due and realized capital gains treated as income. The outgoings side of the account shows the distribution of the total of these incomings between different uses. In the case of enterprises it shows the distribution between entrepreneurial withdrawals, dividends (before taxation), direct taxes and the residual item or saving of the transactor. This saving may represent an addition to free reserves or it may simply be a temporary saving such as the

addition to a taxation reserve which is expected to be spent in the following period. In the case of households and public collective providers this account also shows on the outgoing side the sums due in respect of consumption expenditures. In the numerical example described below, the bulk of this expenditure takes the form of an imputed purchase from the operating account of the same transactor, but expenditure on the products of other sectors may also be debited directly to this account. For example, it would be reasonable to debit tourist expenditure abroad direct to the appropriation account of households and not to regard it as part of the cost of maintaining the household services, and the same is true of other consumption expenditures made by individuals within the family, e.g. for meals and drinks away from home, which do not form part of the expense of maintaining household operations. In the case of public collective providers on the other hand it would be more appropriate to treat expenditure abroad as an element in operating costs since this expenditure would in all cases be incurred in the rendering of government services.

The item shown as consumption expenditure should reflect the value of goods used up and worn out for current purposes in the period of account. In fact, however, because of the conventions normally adopted both here and in the purchases of goods and services in the operating accounts of households and public collective providers, consumption expenditure will reflect the purchase of goods for consumption purposes and will take no account either of the possibility of an inventory change in this sector or of the fact that many goods which are included in fact have a life which extends well beyond the period of account. Thus a more perfect system of accounting would recognize the fact that many consumers' durable goods are not consumption goods at all, but are really elements of fixed asset formation and as such should be charged to the resting account. By current convention the only durable consumers' goods regarded in this way are houses, domestic buildings and land, and the principal reason for this exclusive treatment is the difficulty in assessing an appropriate provision for depreciation on the stock of other consumers' durable goods such as motor cars, refrigerators and the like. A more perfect system of accounts would also make allowance for the possibility of an inventory change on the operating accounts of households and public col-

lective providers since it is obvious that the goods purchased by these accounts may not all be transferred to consumption uses in the period of account. Again, the principal reason for the current convention is that information is almost never available about the changes in the stocks held by households and public collective providers, so that the goods bought are regarded as used up in the same accounting period. In the case of households at any rate it seems probable that in fact stock changes are generally small and that this omission is far less important than the failure to treat durable household goods as capital expenditure.

The direct taxes payable out of this type of account and receivable into the corresponding account of public collective providers are direct taxes levied on income, such as profits and excess profits taxes, income tax and surtax. Direct taxes levied on capital, such as capital levies, special contributions and death duties, are treated in the system described here as payable out of and receivable into resting accounts. The only effect of this treatment as compared with the more usual one of treating taxes levied on capital as payable from and receivable into appropriation accounts is that the saving of the private sector is increased by the amount of these taxes while the saving of public collective providers is correspondingly diminished. The treatment suggested here will tend to give a smoother series for private saving. As far as recurrent taxes levied on capital, such as death duties, are concerned, this is perhaps not of much importance. In the case of special contributions and other capital levies, it is perhaps desirable to adopt a definition of private saving which does not fluctuate violently from one year to the next as a consequence of such taxes being levied.

In the case of public collective providers the appropriation account will receive all proceeds from taxation and will be debited with subsidies and all other current transfers such as state pensions, whether contributory or not, and unemployment and health benefits.

The appropriation accounts of both labour and lending services receive the surplus from the operating accounts and distribute this to those providing the services in the form of wages, salaries or interest.

X. THE ADDING TO WEALTH (OR RESTING) ACCOUNT

This account brings together all capital transactions and may be regarded, looking at the matter from the standpoint of business accounting, as an account in which costs, the benefit from which extends over several periods of account, rest until they are finally written off out of revenue. On the incoming side saving is brought down from the appropriation account and internal provisions for depreciation, bad debts, etc. from the operating account. To these may be added various other forms of capital incomings, such as sums received by the private sector of the economy in respect of war damage claims and post-war tax refunds, and the proceeds of direct taxes levied on capital in the case of public collective providers.

On the outgoings side of the account there will appear total fixed asset formation, including net purchases of existing assets, together with the change in inventories brought down from the operating account. Various capital transfers such as post-war tax refunds which appear on the incoming side of this account in the case of the private sector will of course appear on the outgoing side in the case of public collective providers. The remaining items appearing in this account are of a financial nature and may be conveniently entered on the outgoing side. They comprise all forms of net lending, net change in the purchase of securities, the change in current net indebtedness, and the net change in bank and cash balances.

Reviewing the items in this type of account we can see that they are simply those which normally appear on a balance sheet, although the basis of valuation will in some cases be different, but are shown here as the flow taking place between two balance sheet dates.

XI. A NUMERICAL EXAMPLE BASED ON THE BRITISH OFFICIAL ESTIMATES FOR 1948: THE FIRST FORM OF ACCOUNTS AND THEIR CONSOLIDATION

The way in which the foregoing ideas work out in practice can best be seen from a numerical example. The following statement, which relates to the United Kingdom in 1948, is set out in two ways: first with separate sectors for labour service, home lending service and foreign lending service, and second (in section XIII below) with the appropriate entries in the accounts of these

sectors consolidated with those in the accounts of enterprises, households and public collective providers or, in the case of the foreign lending service, with the account of the rest of the world. The first is helpful as a reminder that we may in principle set costs against the proceeds of selling labour or lending services just as we do against the proceeds of selling the services of enterprises, and if we did we should of course change the definition of the national income. This method of setting out the accounts also has the advantage that, as in ordinary accounts, the purchases of labour and lending services are debited against operating accounts so that the balance on the operating account is the gain or profit accruing to the proprietors. The second method is helpful in that it brings together in each case all factors of production which are contributing to the output of a given actual economic entity. On this method the operating surplus of each sector is equal to its net product at factor cost, the product concept most useful from the standpoint of an industrial classification of total product. Two methods of presenting the system have also been used. The first consists in setting out the transactions in a series of accounts on lines similar to those adopted in ordinary business accounting and in the British national income White Papers.¹ The second form of presentation uses the system of double columns for each account and shows different types of transaction in different rows across the page. An advantage of this system is that by adding additional columns for each sector to take balances on the different accounts it is possible to show the individual transactions and the national aggregates together. The former is more convenient in presenting estimates for a series of years while the latter is more convenient in presenting the estimates for a single year.

In the following accounts brackets have been put round all items which cannot be obtained in their entirety from Cmd. 7649. The following section explains the relationship of the items given here to those in Cmd. 7649 and indicates briefly the steps that have been taken to ensure that the estimates of items not shown in the White Paper are nevertheless consistent with it.

¹ The examples which follow are based on the figures given in *National Income and Expenditure of the United Kingdom, 1946 to 1948* (Cmd. 7649, April 1949).

TRANSACTIONS IN THE BRITISH ECONOMY IN 1948

(FIRST FORM)

(£ million)

Business Enterprises

(1) OPERATING ACCOUNT

1. Purchases from:			6. Sales to operating accounts:		
(a) Public collective providers (fees)	(65a)	(80)	(a) Households	(33a)	(7,563)
(b) Labour service	(97a)	5,209	(b) Public collective providers	(61a)	(825)
(c) Home lending service	(105a)	(97)	7. Sales to resting accounts:		
(d) Rest of the world	(126a)	1,938	(a) Enterprises	(23)	(1,486)
2. Depreciation provision	(28)	(681)	(b) Households	(53)	(75)
3. Indirect taxes	(73a)	(1,926)	(c) Public collective providers	(82)	429
4. Operating surplus	(18)	(3,203)	8. Sales to the rest of the world	(119)	2,109
			9. Value of the change in inventories	(24)	132
			10. Subsidies	(69)	515
5. Total payable		(13,134)	11. Total receivable		(13,134)

(2) APPROPRIATION ACCOUNT

12. Dividends to:			18. Operating surplus	(4)	(3,203)
(a) Rest of the world	(128)	(62)	19. Interest from foreign lending service	(115a)	(32)
(b) Households	(48)	(658)	20. Dividends from rest of the world	(122a)	(84)
(c) Public collective providers	(77)	(5)	21. Interest from home lending service	(107b)	(160)
13. Transfers to public collective providers by public authority enterprises	(78)	(44)			
14. Entrepreneurial withdrawals by:					
(a) Households	(49)	(1,645)			
(b) Public collective providers	(79)	(5)			
15. Direct taxes on income	(80a)	505			
16. Saving	(29)	555			
17. Total payable		(3,479)	22. Total receivable		(3,479)

(3) RESTING ACCOUNT

23. Fixed asset formation	(7a)	(1,486)	28. Depreciation provision	(2)	(681)
24. Value of the change in inventories	(9)	132	29. Saving	(16)	555
25. Compensation to doctors and dentists	(84)	—3	30. War damage claims	(85a)	(115)
26. Lending and debt reduction:			31. Excess profits tax post-war refunds	(86)	15
(a) Households	(55a)	(—177)			
(b) Public collective providers	(87a)	(—175)			
(c) Rest of the world	(124a)	(103)			
27. Total payable		(1,366)	32. Total receivable		(1,366)

Households and Non-profit-making Bodies

(4) OPERATING ACCOUNT

33. Purchases from:			38. Sales to appropriation account	(40a)	7,907
(a) Enterprises	(6a)	(7,563)			
(b) Public collective providers (fees)	(65b)	(30)			
(c) Labour service	(97b)	78			
(d) Home lending service	(105b)	(35)			
34. Depreciation provision	(57)	(34)			
35. Indirect taxes	(73b)	(88)			
36. Operating surplus	(44)	(79)			
37. Total payable		7,907	39. Total receivable		7,907

(5) APPROPRIATION ACCOUNT

40. Purchases from:			44. Operating surplus	(36)	(79)
(a) Operating account	(38)	7,907	45. Interest from foreign lending service	(115b)	(20)
(b) Rest of the world	(126b)	97	46. Dividends from rest of the world	(122b)	(16)
41. Direct taxes on income	(80b)	1,278	47. Interest from home lending service	107c)	(440)
42. Saving	(58)	310	48. Dividends from enterprises	(12b)	(658)
			49. Entrepreneurial withdrawals	(14a)	(1,645)
			50. Wages and salaries	(99)	(6,071)
			51. Transfers from public collective providers	(70)	663
43. Total payable		9,592	52. Total receivable		9,592

(6) RESTING ACCOUNT

53. Fixed asset formation	(7b)	(75)	57. Depreciation provision	(34)	(34)
54. Direct taxes on capital	(92)	214	58. Saving	(42)	310
55. Lending and debt reduction:			59. War damage claims	(85b)	(35)
(a) Enterprises	(26a)	(177)			
(b) Public collective providers	(87b)	(-87)			
56. Total payable		(379)	60. Total receivable		(379)

Public Collective Providers

(7) OPERATING ACCOUNT

61. Purchases from:			65. Fees from:		
(a) Enterprises	(6b)	(825)	(a) Enterprises	(1a)	(80)
(b) Labour service	(97c)	935	(b) Households	(33b)	(30)
(c) Home lending service	(105c)	45	66. Sales to appropriation account	(68a)	1,421
(d) Rest of the world	(126c)	154			
62. Depreciation provision	(89)	110			
63. Operating surplus	(74)	-538			
64. Total payable		(1,531)	67. Total receivable		(1,531)

(8) APPROPRIATION ACCOUNT

68. Purchases from:			73. Indirect taxes from:		
(a) Operating account	(66)	1,421	(a) Enterprises	(3)	(1,926)
(b) Home lending service	(105d)	538	(b) Households	(35)	(88)
69. Subsidies	(10)	515	(c) Labour service	(94)	151
70. Transfers to households	(51)	663	74. Operating surplus	(63)	-538
71. Saving	(90)	392	75. Interest from foreign lending service	(115c)	(10)
			76. Interest from home lending service	(107d)	(55)
			77. Dividends from enterprises	(12c)	(5)
			78. Transfers to public collective providers from public enterprises	(13)	(44)
			79. Entrepreneurial withdrawals	(14b)	(5)
			80. Direct taxes on income from:		
			(a) Enterprises	(15)	505
			(b) Households	(41)	1,278
72. Total payable		3,529	81. Total receivable		3,529

(9) RESTING ACCOUNT

82. Fixed asset formation	(7c)	429	89. Depreciation provision	(62)	110
83. Net purchase of existing assets	(121)	-45	90. Saving	(71)	392
84. Compensation to doctors and dentists	(25)	3	91. Gifts under the Economic Recovery Programme	(123)	(125)
85. War damage claims to:			92. Direct taxes on capital	(54)	214
(a) Enterprises	(30)	(115)			
(b) Households	(59)	(35)			
86. Excess profits tax post-war refunds	(31)	15			
87. Lending and debt reduction:					
(a) Enterprises	(26b)	(175)			
(b) Households	(55b)	(87)			
(c) Rest of the world	(124b)	27			
88. Total payable		(841)	93. Total receivable		(841)

Labour Service

(10) OPERATING ACCOUNT

94. Employers' contributions to national insurance	(73c)	151	97. Sales to operating accounts:		
95. Operating surplus	(101)	6,071	(a) Enterprises	(1b)	5,209
			(b) Households	(33c)	78
			(c) Public collective providers	(61b)	935
96. Total payable		6,222	98. Total receivable		6,222

(11) APPROPRIATION ACCOUNT

99. Wages and salaries	(50)	6,071	101. Operating surplus	(95)	6,071
100. Total payable		6,071	102. Total receivable		6,071

(12) RESTING ACCOUNT

(In this example there are no entries in this account)

Home Lending Service

(13) OPERATING ACCOUNT

103. Operating surplus	(109)	(715)	105. Revenue from loans to:		
			(a) Enterprises	(1c)	(97)
			(b) Households	(33d)	(35)
			(c) Public collective providers' operating account	(61c)	45
			(d) Public collective providers' appropriation account	(68b)	538
104. Total payable		(715)	106. Total receivable		(715)

(14) APPROPRIATION ACCOUNT

107. Interest to:			109. Operating surplus	(103)	(715)
(a) Rest of the world	(127)	(60)			
(b) Enterprises	(21)	(160)			
(c) Households	(47)	(440)			
(d) Public collective providers	(76)	(55)			
108. Total payable		(715)	110. Total receivable		(715)

(15) RESTING ACCOUNT

(In this example there are no entries in this account)

Foreign Lending Service

(16) OPERATING ACCOUNT

111. Operating surplus	(117)	(62)	113. Revenue from loans to rest of the world	(120)	(62)
112. Total payable		(62)	114. Total receivable		(62)

(17) APPROPRIATION ACCOUNT

115. Interest to:			117. Operating surplus	(111)	(62)
(a) Enterprises	(19)	(32)			
(b) Households	(45)	(20)			
(c) Public collective providers	(75)	(10)			
116. Total payable		(62)	118. Total receivable		(62)

(18) RESTING ACCOUNT

(In this example there are no entries in this account)

Rest of the World

(19) CONSOLIDATED ACCOUNT

119. Purchases from United Kingdom enterprises	(8)	2,109	126. Sales to United Kingdom:		
			(a) Enterprises	(1d)	1,938
120. Interest to United Kingdom	(113)	(62)	(b) Households	(40b)	97
121. Net purchase of existing assets from United Kingdom	(83)	45	(c) Public collective providers	(61d)	154
122. Dividends to United Kingdom:			127. Interest from United Kingdom	(107a)	(60)
(a) Enterprises	(20)	(84)	128. Dividends from United Kingdom	(12a)	(62)
(b) Households	(46)	(16)			
123. Gifts to United Kingdom under Economic Recovery Programme	(91)	(125)			
124. Lending and debt reduction:					
(a) British enterprises	(26c)	(-103)			
(b) British public collective providers	(87c)	(-27)			
125. Total payable		2,311	129. Total receivable		2,311

The foregoing accounts are set out in the first of the two diagrams at the end of this report. In that version a set of consolidated accounts is given for enterprises, households, public collective providers, labour service and home lending service. These consolidated accounts are given in the conventional form below.

(20) CONSOLIDATED OPERATING ACCOUNT (excluding Foreign Lending Service)			
130. Purchases from rest of the world by:		135. Sales to rest of the world	2,109
(a) Enterprises	1,938	136. Sales to resting accounts	1,990
(b) Public collective providers	154	137. Sales to appropriation accounts by:	
	2,092	(a) Households	7,907
131. Depreciation provision by:		(b) Public collective providers	1,421
(a) Enterprises	(681)	(c) Home lending service	538
(b) Households	(34)		9,866
(c) Public collective providers	110	138. Value of the change in inventories	132
	825	139. Subsidies	515
132. Indirect taxes (including employers' contributions to national insurance) by:			
(a) Enterprises	(1,926)		
(b) Households	(88)		
(c) Labour service	151		
	2,165		
133. Operating surplus of:			
(a) Enterprises	(3,203)		
(b) Households	(79)		
(c) Public collective providers	-538		
(d) Labour service	6,071		
(e) Home lending service	(715)		
	9,530		
134. Total payable	14,612	140. Total receivable	14,612

(21) CONSOLIDATED APPROPRIATION ACCOUNT
(excluding Foreign Lending Service)

141. Purchases from operating account by:			148. Indirect taxes	2,165
(a) Households	7,907		149. Operating surpluses	9,530
(b) Public collective providers	1,959		150. Interest from foreign lending service to:	
		9,866	(a) Enterprises	(32)
142. Purchases from rest of the world (by households)	97		(b) Households	(20)
143. Subsidies	515		(c) Public collective providers	(10)
144. Interest to rest of the world	(60)			(62)
145. Dividends to rest of the world	(62)		151. Dividends from rest of the world to:	
146. Saving by:			(a) Enterprises	(84)
(a) Enterprises	555		(b) Households	(16)
(b) Households	310			(100)
(c) Public collective providers	392			
		1,257		
147. Total payable	11,857		152. Total receivable	11,857

(22) CONSOLIDATED RESTING ACCOUNT
(excluding Foreign Lending Service)

153. Fixed asset formation by:			158. Depreciation provisions	825
(a) Enterprises	(1,486)		159. Saving	1,257
(b) Households	(75)		160. Gifts under the Economic Recovery Programme	(125)
(c) Public collective providers	429			
		1,990		
154. Net purchase of existing assets	-45			
155. Value of the change in inventories	132			
156. Lending to rest of the world by:				
(a) Enterprises	(103)			
(b) Public collective providers	(27)			
157. Total payable	(2,207)		161. Total receivable	(2,207)

XII. NOTES ON THE DERIVATION OF THE FIGURES

The following notes show the relationship between the items in the above system of accounts and the estimates given in *National Income and Expenditure of the United Kingdom, 1946 to 1948* (H.M.S.O., April 1949, Cmd. 7649). In certain fields, notably the treatment of interest and dividends, of owner-occupied dwellings and of lending and debt reduction a considerable amount of additional estimation has been needed, though most of this disappears on consolidation. Estimates which cannot be derived from the White Paper are shown in brackets and it must be emphasized that these additional entries have been guessed or estimated very roughly. I have chosen a real example because I think this is more interesting and instructive than a constructed one, but the system given here is only an example and does not pretend to accuracy in the estimates not available in the White Paper.

The individual items have been derived as follows. The references are to the White Paper tables and entries. Thus 14(7.a) means item 7.a of table 14 of Cmd. 7649.

- 1.a. Estimated. A sum corresponding to this item together with 33.b below is netted off the estimate of public authority expenditure on goods and services as given in Cmd. 7649.
- 1.b. $14(7.a) + 25(2) - 17(30.a + 30.c)$.
- 1.c. Guessed. Apart from the debt interest of public collective providers interest is not distinguished from profit in Cmd. 7649. The estimate shown here is intended to represent interest on borrowed money and does not include imputed interest on money capital supplied by the proprietors or accruing from business saving ploughed back into the enterprise in which it arises. Quite apart from this point it must be recognized that, while the legal distinction between interest and profit is fairly clear, the economic distinction may not be.
- 1.d. 14(4).
2. This item and the next could be derived from Cmd. 7649, and the explanation of certain other items given here would be simpler, were it not for the fact that the operation of owner-occupied dwellings is here treated as part

of household operations. The following entries have been assumed for the operating account of owner-occupied dwellings which is included in the operating account for households.

(£ million)			
1. Home lending service (mortgage interest)	35	6. Imputed rent	236
2. Depreciation provision (repairs out of this provision are charged to resting account)	34		
3. Indirect taxes (rates)	88		
4. Operating surplus	79		
5. Total payable	236	7. Total receivable	236

The depreciation provision charged to enterprises (681) plus the similar item in the above table (34) add to 715, the figure shown in 14(6).

3. This item is derived thus:

	£m.
Indirect taxes (including employers' contributions) paid by enterprises, 14(5)	2,142
<i>less</i> Employers' contributions, 25(2) - 17(30.a + 30.c)	-128
<i>less</i> Rates on owner-occupied dwellings	-88
	<hr/> 1,926

4. This item is derived thus:

	£m.
Payments by enterprises to factors of production other than labour, 14(7.b to e)	3,564
<i>less</i> Interest (1.c above)	-80
<i>less</i> Mortgage interest on owner-occupied dwellings	-35
<i>less</i> Operating surplus on owner-occupied dwellings	-79
<i>less</i> Part of increase in inventories due entirely to price increases (Cmd. 7649, p. 17)	-150
	<hr/> 3,220

The last item mentioned represents one of the two differences between the concept of profit, and therefore of national income, adopted here and that adopted in the White Paper. On the latter basis the change in the value of inventories will contribute to profit and the national income. On the basis used here the operating account is credited with a smaller sum intended to represent the value of the physical change in inventories, thus ensuring that profits and the national income are not affected by the mere fact that opening inventories are valued differently from closing inventories.

- 6.a. 14(1.a) *less* estimated gross rents of owner-occupied dwellings *less* fees estimated to have been paid by households to public collective providers.
- 6.b. 14(1.b) *plus* all fees estimated to have been paid to public collective providers.
- 7.a. This item is derived thus:

	£m.
Fixed asset formation, 2(3.a)	1,990
<i>less</i> Fixed asset formation of public collective providers, 18(46.b)	—429
<i>less</i> Fixed asset formation of owner-occupiers of dwellings	—75
	—
	1,486
	—

7.b. See last item above.

7.c. 18(46.b).

8. 14(1.d)+2(3.d) *less* £45 million. The addition of the second item ensures that as far as possible British exports are valued on a receivable basis and that British companies operating abroad are treated as a part of the rest of the world. See Cmd. 7649, p. 17. The final deduction, £45 million, is in respect of purchases of buildings and equipment by the Government of India under the Agreement of July 1948. In Cmd. 7649 this item is treated as a reduction in British inventories and as an export by enterprises. Here it is treated as a purchase of existing assets by the rest of the world from public collective providers.

9. 2(3.b+3.c) *less* £150 million (see note to item 4 above) in respect of that part of the increase in the value of inventories due entirely to price increases and *plus* £45 million for the reason indicated in the preceding note.
10. 14(2).
12. The assumptions made in allocating rent, interest and dividends are complicated and highly uncertain. The following table shows at the head of each column the type of payable and the sector debited, and at the side of each row the sector credited.

(£ million)

		R	E I	D	R	H I	PCP I	I	RW D	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
E	(1)	80	15	—	0	35	10	32	84	356
H	(2)	266	40	658	79	0	400	20	16	1,479
PCP	(3)	5	22	5	0	0	33	10	0	75
RW	(4)	0	20	62	0	0	40	—	—	122
Total	(5)	351	97	725	79	35	583	62	100	2,032

Apart from the row and column of totals this table contains $4 \times 8 = 32$ entries. Of these the three marked '—' are irrelevant, thus reducing the effective total to 29, while eight may plausibly be assumed to be zero, thus further reducing the total to 21. The White Paper provides seven independent equations connecting the items in the table which further reduce the degrees of freedom of the table to 14. If we denote the item in the i^{th} row and j^{th} column of the table by a_{ij} then we may take the equations

(1) From 14(7.c)

$$\sum_i a_{i1} + \sum_i a_{i4} = 430$$

(2) From 15(10)

$$a_{11} + a_{16} + a_{17} + a_{18} = 306$$

(3) From 15(13.a+13.b) *plus* £17 million local authority trading service interest

$$a_{22} + a_{23} + a_{32} + a_{33} + a_{42} + a_{43} = 807$$

(4) From 16(19)

$$\sum_j a_{2j} = 1,479$$

(5) From 15(12) and 17(31.a)

$$\sum_j a_{3j} = 75$$

(6) From 17(31.b) *less* £17 million local authority trading service interest

$$\sum_i a_{i6} = 583$$

(7) From 19(50)

$$\sum_j a_{4j} = 122$$

The White Paper also provides an eighth equation:

(8) From 19(53)

$$\sum_i a_{i7} + \sum_i a_{i8} = 162$$

but this is not independent since it is known that total payables are equal to total receivables.

The fourteen items which have been roughly estimated are a_{11} , a_{12} , a_{15} , a_{17} , a_{22} , a_{24} , a_{27} , a_{28} , a_{31} , a_{32} , a_{33} , a_{37} , a_{42} and a_{46} . Many of these items probably are fairly small as has been assumed here. In others however the margin of error may be considerable. On this basis the remaining seven items, mostly rather large, are determined by the constraints.

13. 15(12).

14.a. $14(7.b) + a_{21}$.

14.b. a_{31} .

15. 15(14.a).

16. $15(14.b + 15.a + 15.b)$ *less* £150 million in respect of inventory adjustment. See note to item 4 above.

19. See note to item 12.

20. See note to item 12.

21. See note to item 12.

25. The negative of 23(36). The compensation paid to doctors and dentists in respect of the goodwill of their practices is treated as the purchase of an existing intangible asset

by public collective providers and as a negative purchase by enterprises, which include individuals and partnerships engaged in professional practice.

26. Not very much is known about lending and borrowing beyond the net lending (including debt reduction) of each sector and some details of the position of public collective providers. The following table shows the guesses made. Lending appears in the columns and borrowing in the rows yielding an anti-symmetric matrix.

(£ million)

		E (1)	H (2)	PCP (3)	RW (4)	Total (5)
E	(1)	0	177	175	-103	249
H	(2)	-177	0	87	0	-90
PCP	(3)	-175	-87	0	-27	-289
RW	(4)	103	0	27	0	130
Total	(5)	-249	90	289	-130	0

In this table there are six elements to be estimated. Given the assumptions already made about owner-occupiers, the division of war damage claims met between enterprises, households and public collective providers (see note to item 30 below), and an estimate of £125 million for gifts (as opposed to loans) under the Economic Recovery Programme, the marginal totals are known, as residuals in the resting accounts, yielding three independent constraints and leaving three degrees of freedom in the table.

The first step in filling in the table is to estimate the entries for public collective providers. This has been done by first rearranging, with the aid of *United Kingdom Balance of Payments, 1946 to 1948 (No. 2)* (H.M.S.O., March 1949, Cmd. 7648), the figures given in table 30 of Cmd. 7649 adding figures for local authorities and national insurance funds and subtracting figures for public enterprises.

The negative of item 30(29) of Cmd. 7649, representing net lending and debt repayment by the central government, may in part be allocated to sectors as follows:

	£ million	Entries in Cmd. 7649 Cmd. 7648	
1. Repayment of Canadian government interest-free loan	16	-30(16)	IV(9) less £1 million -IV(17)
2. Repayment of R.F.C. loan	8	-30(17)	
3. Fall in sterling liabilities	211		
4. less Drawings on U.S. and Canadian government lines of credit	-87	-30(18)	-V (columns 3 and 4)
5. less South African gold loan	-80	-30(19)	-V (column 7)
6. less Net drawings on I.M.F.	-9	-30(20)	-V (column 5) + IV.8
7. less Loan under E.R.P.	-32	Part of -30(21 + 23)	Part of -V (column 8)
8. Net lending and debt reduction to the rest of the world (total, items 1-7)	27		
9. Advances to the National Coal Board	31	-30(26)	
10. Advances under the Cotton (Centralised Buying) Act	46	30(27)	
11. Advances under the Overseas Resources Development Act	18	-30(28)	
12. Lending to publicly controlled enterprises, etc. (total, items 9-11)	95		
13. Net lending and debt reduction to Local Authorities	243	-30(25)	
14. Net lending and debt reduction to National Insurance Funds	-115	-30(10)	
15. Other net lending and debt reduction	310		
16. Total net lending and debt reduction by the central government (total, items 8 and 12-15)	560		
17. less Gift under E.R.P.	-125	Part of -30(21 + 23)	Part of -V (column 8)
18. Total as shown in Cmd. 7649	435	-30(29)	

Net lending and debt reduction by the central government other than to the rest of the world, publicly controlled enterprises, etc., local authorities and national insurance funds is thus shown to be about £310 million. To this must be added net lending, other than to the central government, by local authorities and national insurance funds, and from it must be deducted net lending, which can be calculated as the excess of capital

receivables over asset formation, by government trading services. The calculation is as follows:

	£ million	Entries in Cmd. 7649
1. Other net lending and debt reduction by:		
a. Central government	310	
b. Local authorities	22	— 30(25) — 27(13) + £11 million in respect of war damage claims met in respect of assets held by local authority rate fund services not shown in Cmd. 7649
c. National insurance funds	— 10	
	322	
2. <i>plus</i> Gross fixed asset formation by government trading services:		
a. Central government	26	24(44.a)
b. Local authorities	28	27(15.a)
	54	
3. <i>less</i> Depreciation provision on above	— 24	-- { 24(41) + 27(12) — 17(35) }
4. <i>less</i> Saving by public enterprises, including additions to tax reserve	—	— 15(15.b) — part of 15(14.b)
5. <i>plus</i> Increase in central government inventories	27	24(45)
6. <i>less</i> Sales of surplus stores other than buildings and equipment sold to the Government of India	— 212	24(46) + £45 million
7. Other net lending and debt reduction by public collective providers	167	

The entries in the first table of this note, denoted by b_{ij} , have been filled in as follows. The item $b_{43} = -b_{34}$ appears as item 8 in the second table. Item b_{24} is assumed to be zero, thus enabling b_{14} to be derived by using one of the constraints. The sum $b_{13} + b_{23}$ is equal to the sum of item 12 (£95 million) in the second table and item 7 (£167 million) in the third table. To obtain b_{13} we must take the £95 million of advances by the central government to public enterprises and add an amount, x say, to represent other net lending and debt reduction by public

collective providers to enterprises. Since no information is available about x it has been put arbitrarily at £80 million, thus yielding $b_{13} = -b_{31} = £175$ million, and hence $b_{12} = -b_{21} = £177$ million.

The entries in the tables should be clear from the references except perhaps for item 4 in the third table, representing the saving of public enterprises including additions to tax reserve. This table will only balance if the total incomings into the resting account of public enterprises are estimated in a consistent way. In Cmd. 7649 no information is given about the share of public enterprises in additions to tax reserves, excess profits tax refunds and war damage claims. It is assumed here that their share in these items is £5 million in the case of the first and nil in the second and third.

30. 23(34) *less* £35 million assumed to be payable to households and *less* £11 million assumed to be payable to public collective providers (local authority rate fund services).
31. 23(35).
- 33.a. 16(22.c) *less* the amount (£236 million) assumed to be the gross rental, including rates, imputed to the owner-occupiers of dwellings, and *less* a further amount (£30 million: see the next item) assumed to be payable as fees by households to public collective providers.
- 33.b. Estimated.
- 33.c. 16(22.a + 22.b).
- 33.d. Mortgage interest. See note to item 2.
34. See note to item 2.
35. See note to item 2.
36. See note to item 2.
38. 16(22.a + 22.b + 22.c).
- 40.b. 16(23).
41. 16(24.a).
42. 16(24.b + 25 + 26). In this system direct taxes on capital have been charged to the resting account.
45. See note to item 12.

- 46. See note to item 12.
- 47. See note to item 12.
- 48. See note to item 12.
- 50. $16(17.a + 17.b + 17.c)$.
- 51. $16(20)$.
- 54. $16(24.b)$.
- 55. See note to item 26.
- 59. See note to item 30.
- 61.b. $17(34 + 36)$.
- 61.c. Local authority debt interest incurred in respect of capital expenditure on rate fund services. This represents a reversion to the treatment of previous White Papers and is adopted here because the loans in respect of which this interest is paid are certainly not consumption loans but are to finance capital expenditure. No doubt a part of the national debt is in the same position but it is not known how much, nor might it be possible to answer this question since, unlike local authorities, the central government does not distinguish between current and capital expenditure and does not finance one out of taxes and income from property and the other from loans. Thus there seems little chance of subdividing the national debt between consumption and other loans, and the interest on it has therefore to be put in one class or the other. It will be seen that this problem is peculiar to interest payable by non-profit-making bodies since in the case of enterprises the total income generated is independent of the amount of interest paid.
- 61.d. $17(33.b)$.
- 62. $17(35)$.
- 63. $17(31.b) + £45$ million. See note to item 61.c. This item ensures that no income from property is generated in the economy as a whole in respect of the interest payable by public collective providers on their consumption loans.
- 66. $17(33 + 34 + 35 + 36)$ *plus* £45 million *less* £555 million here charged directly to the appropriation account. See notes to items 61.c and 63.

- 68.b. The negative of 17(31.b) *less* £45 million. This item represents the interest payable by public collective providers on their loans.
71. $17(38.b + 39 - 29)$.
- 73.c. 25(2).
75. See note to item 12.
76. See note to item 12.
79. Represents net rents accruing to public collective providers. See note to item 12.
82. 18(46.b).
87. See note to item 26.
- 107.a. See note to item 12.
113. See note to item 12.

XIII. THE SECOND FORM OF ACCOUNTS

In this section the sectors used in the first form of accounts have been reduced in number by consolidating the entries in the accounts for labour and home lending services with those in one or other of the remaining sectors. For example the entries in the labour service accounts relating to the employees are consolidated with the entries in the set of accounts for enterprises themselves. The only effects of this consolidation are to add the figure for the employers' contributions to national insurance in respect of the employees of enterprises to the estimates of indirect taxes paid by enterprises, and to increase the operating surplus of enterprises by the net gain to their employees. In this version the sector enterprises relates to those providing labour and lending services to enterprises as well as to the proprietors.

The consolidated accounts for this version are the same as those given at the end of section XI and accordingly are not reproduced again. This form of accounts is set out in the second of the two diagrams at the end of this paper.

TRANSACTIONS IN THE BRITISH ECONOMY IN 1948

(SECOND FORM)

(£ million)

Business Enterprises

(1) OPERATING ACCOUNT

1. Purchases from:			6. Sales to operating accounts of:		
(a) Public collective providers	(71a)	(80)	(a) Households	(37a)	(7,563)
(b) Rest of the world	(110a)	1,938	(b) Public collective providers	(66a)	(825)
2. Depreciation provision	(32)	(681)	7. Sales to resting accounts of:		
3. Indirect taxes (including employers' contributions to national insurance)	(82a)	(2,054)	(a) Enterprises	(27)	(1,406)
4. Operating surplus	(22)	(8,381)	(b) Households	(58)	(75)
			(c) Public collective providers	(91)	429
			8. Sales to rest of the world	(103)	2,109
			9. Value of the change in inventories	(29)	132
			10. Subsidies	(75)	515
5. Total payable		(13,134)	11. Total receivable		(13,134)

(2) APPROPRIATION ACCOUNT

12. Interest to rest of world	(111a)	(20)	22. Operating surplus	(4)	(8,381)
13. Dividends to rest of the world	(112)	(62)	23. Interest from rest of the world	(105a)	(32)
14. Interest to:			24. Dividends from rest of the world	(106a)	(84)
(a) Households	(52a)	(40)	25. Interest from:		
(b) Public collective providers	(85)	(22)	(a) Households	(45)	(35)
15. Dividends to:			(b) Public collective providers	(77a)	(110)
(a) Households	(53)	(658)			
(b) Public collective providers	(86)	(5)			
16. Transfers to public collective providers by public authority enterprises	(87)	(44)			
17. Entrepreneurial withdrawals by:					
(a) Households	(54)	(1,645)			
(b) Public collective providers	(88)	(5)			
18. Wages and salaries	(55a)	5,081			
19. Direct taxes on income	(89a)	505			
20. Saving	(33)	555			
21. Total payable		(8,642)	26. Total receivable		(8,642)

(3) RESTING ACCOUNT

27. Fixed asset formation	(7a)	(1,486)	32. Depreciation provision	(2)	(681)
28. Compensation to doctors and dentists (net purchases of existing assets)	(93)	-3	33. Saving	(20)	555
29. Value of the change in inventories	(9)	132	34. War damage claims	(94)	(115)
30. Lending and debt reduction:			35. Excess profits tax post-war refunds	(95)	15
(a) Households	(60a)	(-177)			
(b) Public collective providers	(96a)	(-175)			
(c) Rest of the world	(108a)	(103)			
31. Total payable		(1,366)	36. Total receivable		(1,366)

Households and Non-profit-making Bodies

(4) OPERATING ACCOUNT

37. Purchases from:			42. Sales to appropriation account	(44a)	7,907
(a) Enterprises	(6a)	(7,563)			
(b) Public collective providers	(71b)	(30)			
38. Depreciation provision	(62)	(34)			
39. Indirect taxes (including employers' contributions to national insurance)	(82b)	(92)			
40. Operating surplus	(49)	(188)			
41. Total payable		7,907	43. Total receivable		7,907

(5) APPROPRIATION ACCOUNT

44. Purchases from:			49. Operating surplus	(40)	(188)
(a) Operating account	(42)	7,907	50. Interest from rest of the world	(105b)	(20)
(b) Rest of the world	(110b)	97	51. Dividends from rest of the world	(106b)	(16)
45. Interest to enterprises	(25a)	(35)	52. Interest from:		
46. Direct taxes on income	(89b)	1,278	(a) Enterprises	(14a)	(40)
47. Saving	(63)	310	(b) Public collective providers	(77b)	(400)
			53. Dividends from enterprises	(15a)	(658)
			54. Entrepreneurial withdrawals	(17a)	(1,645)
			55. Wages and salaries from:		
			(a) Enterprises	(18)	5,081
			(b) Public collective providers	(78)	916
			56. Transfers from public collective providers	(79)	663
48. Total payable	(9,627)		57. Total receivable	(9,627)	

(6) RESTING ACCOUNT

58. Fixed asset formation	(7b)	(75)	62. Depreciation provision	(38)	(34)
59. Direct taxes on capital	(101)	214	63. Saving	(47)	310
60. Lending and debt reduction:			64. War damage claims	(94b)	(35)
(a) Enterprises	(30a)	(177)			
(b) Public collective providers	(96b)	(-87)			
61. Total payable	(379)		65. Total receivable	(379)	

Public Collective Providers

(7) OPERATING ACCOUNT

66. Purchases from:			71. Fees from:		
(a) Enterprises	(6b)	(825)	(a) Enterprises	(1a)	(80)
(b) Rest of the world	(110c)	(154)	(b) Households	(37b)	(30)
67. Depreciation provision	(98)	100	72. Sales to appropriation account	(74)	1,959
68. Indirect taxes (including employers' contributions to national insurance)	(82c)	19			
69. Operating surplus	(83)	961			
70. Total payable	(2,069)		73. Total receivable	(2,069)	

(8) APPROPRIATION ACCOUNT

74. Purchases from operating account	(72)	1,959	82. Indirect taxes from:		
75. Subsidies to enterprises	(10)	515	(a) Enterprises	(3)	(2,054)
76. Interest to rest of the world	(111b)	(40)	(b) Households	(39)	(92)
77. Interest to:			(c) Public collective providers	(68)	19
(a) Enterprises	(25b)	(110)	83. Operating surplus	(69)	961
(b) Households	(52b)	(400)	84. Interest from rest of the world	(105c)	(10)
78. Wages and salaries	(55b)	916	85. Interest from enterprises	(14b)	(22)
79. Transfers to households	(56)	663	86. Dividends from enterprises	(15b)	(5)
80. Saving	(99)	392	87. Transfers to public collective providers from public enterprises	(16)	(44)
			88. Entrepreneurial withdrawals	(17b)	(5)
			89. Direct taxes on income from:		
			(a) Enterprises	(19)	505
			(b) Households	(46)	1,278
81. Total payable	(4,995)		90. Total receivable	(4,995)	

(9) RISING ACCOUNT

91. Fixed asset formation	(7c)	429	98. Depreciation provision	(67)	110
92. Net purchase of existing assets	(104)	-45	99. Saving	(80)	392
93. Compensation to doctors and dentists	(28)	3	100. Gifts from rest of the world under E.R.P.	(107)	(125)
94. War damage claims by:			101. Direct taxes on capital	(59)	214
(a) Enterprises	(34)	(115)			
(b) Households	(64)	(35)			
95. Excess profits tax post-war refunds	(35)	15			
96. Lending and debt reduction:					
(a) Enterprises	(30b)	(175)			
(b) Households	(60b)	(87)			
(c) Rest of the world	(108b)	27			
97. Total payable	(841)		102. Total receivable	(841)	

Rest of the World

(10) CONSOLIDATED ACCOUNT

103. Purchases from United Kingdom enterprises	(8)	2,109	110. Sales to United Kingdom:		
104. Net purchase of existing assets from United Kingdom	(92)	45	(a) Enterprises	(1b)	1,938
105. Interest to United Kingdom:			(b) Households	(44b)	97
(a) Enterprises	(23)	(32)	(c) Public collective providers	(66b)	154
(b) Households	(50)	(20)	111. Interest from United Kingdom:		
(c) Public collective providers	(84)	(10)	(a) Enterprises	(12)	(20)
106. Dividends to United Kingdom:			(b) Public collective providers	(76)	(40)
(a) Enterprises	(24)	(84)	112. Dividends from United Kingdom	(13)	(62)
(b) Households	(51)	(16)			
107. Gifts to United Kingdom under the Economic Recovery Programme	(100)	(125)			
108. Lending and debt reduction:					
(a) British enterprises	(30c)	(- 103)			
(b) British public collective providers	(96c)	- 27			
109. Total payable		2,311	113. Total receivable		2,311

XIV. A DISCUSSION OF THE EXAMPLE: THE SECTORS USED

In the example, set out in its two forms in sections XI and XIII, I have tried to summarize the transactions in the British economy during 1948 in accordance with the principles developed in the earlier sections of this paper. My object now is to discuss the extent to which these principles are reflected in the actual case I have chosen, but before doing this I shall indicate the coverage of the different sectors.

Enterprises are here thought of as the centre of business decisions in which a number of factors of production are brought together and organized with the object of producing goods and services for sale. Thus a landlord who owns a dwelling which he lets is treated as an enterprise, while the activity of the owner-occupier of a dwelling is recorded as part of the operating activity of the household sector. Public and private business undertakings of all kinds are included in the enterprise sector. Private

enterprises may take the form of companies, partnerships, sole traders or individuals engaged in professional practice, while public enterprises are composed of public corporations and the trading services of government departments and local authorities.

The principal feature of households and the non-profit-making bodies which are grouped with them is that their products are not intended for sale. It is true that their operating account may show a surplus, as in the case of the net rent of owner-occupied dwellings, but any such profit arises not in general from an actual sale but from an imputation designed in certain well-defined spheres to put the accounts of those who do things for themselves on to a comparable footing with those who buy or hire them from other people.

In the public sphere, public collective providers correspond to households and other non-profit-making bodies in the private sphere. They comprise all forms of government administration, whether central or local, which are excluded from the category of enterprises. Their function is to organize for, but not normally to sell to, the community those common services which cannot conveniently and economically be provided by households and other associations of individuals.

Labour and lending services are introduced here mainly for expository purposes and are consolidated away in the second form of accounts. The first comprises those who work in the capacity of employees, and the second comprises all who lend money whether for production or consumption purposes. It is necessary in deriving the geographical product to divide these sectors into home and foreign, the former branch providing the services for the economy under investigation and the latter providing them for the rest of the world. The entries in the foreign labour and lending service accounts may be consolidated with those in the account for the rest of the world without any loss of information. In Cmd. 7649 all British labour is assumed to be employed in the British economy so that there is no foreign labour service in this example.

The rest of the world comprises all those transactors not deemed to be within the economy under investigation but, being in consolidated form, contains of course only transactions in which that economy is involved.

XV. THE OPERATING ACCOUNTS

On the incoming side of the operating account for enterprises there are three items, sales of goods and services, the value of the change in inventories, and subsidies. The first of these does not call for much discussion, except that it may be noted that all imports in the ordinary sense of the term are routed through the operating account of enterprises, with the consequence that their value appears in this item, except insofar as a part of this value is included in the value of the change in inventories. In the great majority of cases this will be the correct treatment, since generally speaking British imports will be brought into the country by a business enterprise and then sold to some sector of the British economy. An exception will however occur insofar as capital goods, such as ships and machinery, are imported directly from abroad by the firm that is going to use them. Such imports would be more naturally treated in my scheme as a debit directly against the resting account of enterprises, with a reduction in the value of imports debited to the operating account of enterprises, in the sales proceeds of enterprises and in the corresponding purchases debited to the resting account of enterprises.

The estimate for the value of the change in inventories is necessarily rough, but in principle it provides the kind of information required. The figure given is comparatively small, largely because it contains a considerable negative component representing the sales of surplus stores by the central government. This item however reappears as a debit in the resting account of enterprises, and an attempt is made in the discussion of the resting accounts given below¹ to disentangle the resting account entries for private enterprises from those for public enterprises including trading services.

Details of the last of the three items, subsidies, are given in Table 28 of Cmd. 7649. There are no doubt some marginal items, but on the whole the estimate is I think in accord with the definition of subsidies adopted in the theoretical discussion. It will be noted that a very large item making up the bulk of the total represents trading losses of the Ministry of Food. In general however I think it is true to say that these trading losses arise as a consequence of the differential in the fixed buying and

¹ See page 65.

selling prices for food products, so that the magnitude of the subsidy per unit of sales at any one time is fixed in advance. The finance of these trading losses does not really represent the undertaking of an unspecified liability by the central government, but one which is fixed per unit of sales. This form of subsidy closely corresponds to indirect taxation levied on output or sales, the rate of tax per unit being given in advance, but the total revenue from the tax being determined by the amount of trade done.

On the outgoing side of this account there are seven items, some of which call for further discussion. The sums payable in respect of lending services represent the amounts due in respect of the purchases of these services, and no attempt is made to calculate the total capital employed, apply an appropriate rate of interest to this sum and then move a portion of profit corresponding to the imputed interest on capital provided by the proprietors into the item for the purchase of lending services. The same is true with respect to labour services in the case of unincorporated enterprise. The figure for the purchase of labour services does not include any sum transferred from profit in respect of the value of the labour undertaken by the proprietors of such enterprises.

The next item which calls for comment is the entry for depreciation provision. On this two points must be made. First the provisions are not on a replacement cost basis, being derived in the main from income tax allowances. In the second place, allowances for repairs have been included in the case of buildings and highways, with the consequence that this kind of repair is debited to resting accounts as an element of gross asset formation. It would no doubt be better to treat these repairs as direct operating debits as in the case of repairs to machinery and plant, but I have not in fact made this adjustment in the figures given.

The entry for indirect taxes is made up of local rates together with a long list of taxes levied by the central government which are set out in some detail in Table 23 of Cmd. 7649. It may be noted that I have followed the White Paper in treating the surplus shown in the Post Office commercial accounts as an indirect tax and not as an item of government income from property.

The operating surplus in the first arrangement of the system represents the gain from productive activity accruing to the pro-

prietors. In the second arrangement it represents the total income accruing either to the proprietors or to those in the labour and lending services who are co-operating with them in production.

The operating account for households contains only one credit item, sales to the household appropriation account. This means that the whole of the goods and services bought by households, apart from the comparatively small item of tourist expenditure abroad, is taken to represent the cost and profit of conducting household operations. In point of fact however it might be thought desirable to treat a number of goods and services bought by individuals as appropriation account debits in the same way that tourist expenditure has been treated here, and regard a somewhat more restricted set of purchases to be concerned with conducting household operations. Examples of items which might better be treated in this way are expenditure on food and drink consumed outside the home, and entertainments of all kinds. The effect of this would be to emphasize the difference between the household and the individual spending units. To the extent that more goods and services are regarded as purchased by the appropriation account of households directly from enterprises, so the operating credit and the main appropriation account debit for households would be reduced, and so would the operating debit in the household sector relating to purchases from enterprises. The whole rearrangement would not affect the national income or the main totals, but would perhaps reflect more accurately the different kinds of activity within the household.

Most of the remaining debits in the operating account of households relate to the question of owner-occupied houses, which are treated as a part of the cost of conducting household operations, and have been removed from the enterprise sector where they appear in Cmd. 7649. Purchases from the home lending service represent mortgage interest assumed to enable individual households to acquire new or existing houses. No figure appears in this example for interest payable in respect of consumption loans raised by households.

The operating account for public collective providers is drawn up on the same principles as the one for households. In this account there are brought together all the costs relating to the operation of government administrative services, the main pur-

chaser of these services being the appropriation account of public collective providers themselves except for a small amount of sales to enterprises and households against fees and the like. This accords with the usual treatment whereby it is recognized that the government is, in the case of all its administrative services, a final buyer raising the money required by means of taxation and borrowing but not in any meaningful sense selling its output of administrative services to enterprises and households except for the very small revenue from fees and the like mentioned above.

It may be thought that any branch of government activity in receipt of fees and the like should be treated as a public enterprise and not included among public collective providers. This however is not the case, since in many branches of government activity, e.g. public education, a contribution may be required of certain users either on account of their means or to help towards the costs of some special service. Clearly it would be most inconvenient to have to treat public education, when predominantly it is not charged for, as a public enterprise. As a result of not doing this however the necessity arises of recognizing fees payable to public authorities.

It will be convenient to start the discussion of the entries in this account by studying those on the debit side. The first of these represents purchases from British enterprises and is larger than the figure given in Cmd. 7649 by the estimated revenue from fees paid by enterprises and households which have been netted off the figure given there. The second entry represents the cost of labour services and represents the wages and salaries due to employees of public collective providers together with the employers' national insurance contributions in respect of these employees.

The third entry represents the interest due to the home lending service in respect of the debt incurred by local authority rate fund services. In the note to item 12, table 4, of Cmd. 7649, this interest is estimated at £40-50 million, and a figure of £45 million has therefore been adopted for 1948. The remaining £555 million of national debt interest comprises £17 million of interest payable by local authority trading services which is debited to the operating account of enterprises and £538 million which has been treated as a debit not in this account but in the appropriation account of public collective providers, to emphasize the fact

that it is regarded here, as in the White Paper, as interest on a consumption loan. The debt interest of the local authority rate fund services included in the operating account represents interest on loans raised to finance capital expenditure, and has been included as an operating charge simply because it is not interest on a consumption loan.

The fourth outgoing item from this account represents the purchase of goods and services from the rest of the world. It is treated here as a debit in the operating account because it is part of the cost of providing and maintaining British government services. The fifth entry shows the provision for maintenance of buildings, highways and bridges plus annuities under the Housing (Temporary Accommodation) Act of 1944, and local authority provision for debt repayment on rate fund service account (here taken as equivalent to depreciation provision). As has already been suggested in discussing the similar entry in the accounts of enterprises, it might be better to treat the maintenance provisions in this item as a direct purchase rather than a provision transferred to the resting account out of which the purchase is made.

The final debit entry in this account represents the operating surplus of public collective providers, and is so calculated as to ensure that if the accounts of public collective providers are consolidated with those of their lenders, no income will be generated apart from the interest payable by public collective providers on loans other than for consumption purposes, i.e. in this case the interest on loans raised by local authority rate fund services. It can readily be seen, therefore, that this item must be set equal to the negative of the interest on consumption loans by public collective providers.

The credit entry in this operating account comprises the fees paid to public collective providers by enterprises and households, which are both small items, together with the residual value of charges plus profit on this account which is paid for wholly by the appropriation account.

The operating account of labour services requires very little elaboration. On the incoming side there is shown the total sum paid for labour services by all sectors of the economy, including employers' national insurance contributions which are treated as part of the cost of labour services. On the outgoing side the same employers' contributions are shown as a cost, leaving an

amount equal to wages and salaries as the operating surplus. In treating employers' national insurance contributions as a cost in this way I have followed the treatment of Cmd. 7649. To bring the estimates in this respect into line with the definition adopted for international comparisons by the Statistical Office of the United Nations,¹ it would be necessary to treat the employers' contributions as part of the operating surplus of labour services and then deduct this item as a direct tax in the appropriation account, thus leaving the conventional figure of wages and salaries as the residual payable item in the appropriation account.

The operating account for home lending services also calls for very little comment. The sole entry on the incoming side represents revenue from loans to the different sectors of the British economy, whether these are treated as consumption loans or not. Since this revenue is regarded as a net figure there are no costs to be debited against it and consequently the whole amount is transferred to the appropriation account as an operating surplus.

If we consolidate the operating accounts so far discussed, we obtain a concise account of the operating activity of the British economy, from which we can see very clearly the items which enter into the gross geographical product at market prices, the net geographical product at market prices, and the net geographical product at factor cost. In the second form of presentation (see the diagrams at the end of this paper) these three aggregates of transactions are shown as balances on the consolidated operating account taken at different stages. The first, namely the gross geographical product at market prices, is taken when only sales proceeds, including the value of the change in inventories, and purchases of goods and services, have been brought into account. The net geographical product at market prices is obtained by adding as a further cost entry provisions for depreciation, while the net geographical product at factor cost is obtained from this by treating indirect taxation as a further outgoing entry and subsidies as a further incoming entry additional to sales proceeds. Since this series of balances can be taken for each constituent sector of the economy the contribution of each to each of the aggregates of transactions is also shown.

¹ See *National Income Statistics of Various Countries, 1938-1947* (United Nations, 1948).

So far nothing has been said about the foreign lending service. This sector is concerned solely with interest on British loans to the rest of the world and can without any loss of information be consolidated with the account for the rest of the world.

XVI. THE APPROPRIATION ACCOUNTS

The appropriation accounts bring together the various sources of income accruing to each sector of the economy, and show the way in which this income is disposed of. In the case of enterprises the first entry is the surplus transferred from the operating account, and to this we may add in the first place interest and dividends received by enterprises from the foreign lending service and the rest of the world and finally the interest received from the home lending service. On the outgoing side we have dividends to the rest of the world and to other sectors of the British economy, together with transfers of profit by public enterprises to public collective providers and entrepreneurial withdrawals by all sectors of the economy from enterprises. The latter figure includes professional earnings, farmers' profits, trading profits of other sole traders and partnerships and that part of the net income from rents which does not accrue to enterprises.

There are two further outgoing figures on this account. The first represents the direct taxes payable by companies and public enterprises excluding taxation payable on income transferred to other sectors of the economy, all of which are shown gross of direct taxation. Thus the figure shows Profits Tax, Excess Profits Tax and Income Tax paid by companies less Income Tax deducted at source when interest and dividends are paid. Although in principle the estimate represents the amount payable, the figure actually shown represents payments made since additions to tax reserves are not included here but in the figure for saving. The reason is that the estimate of the additions to tax reserves is mainly concerned not with the difference between payments and sums legally due, but between payments and those sums which would be due if assessments were made on current income. Thus the additions to tax reserves are in respect of the net anticipated liability in respect of current income, the greater part of which will only become legally payable in the following accounting period.

As has just been mentioned, the figure for saving, which is the balancing item in this account and is transferred to the resting account, includes additions to tax reserves as well as amounts placed to free reserves. It is less than the corresponding figure in Cmd. 7649 by £150 million, which represents that part of the increase in inventories which is due entirely to price increases and which has been deducted here from the operating surplus (as compared with the figures in Cmd. 7649). As a consequence there is a similar effect on the figure for saving.

The appropriation account for households covers essentially the same ground as table 16 of Cmd. 7649, which shows the revenue account of persons, the only difference being that here the entries are somewhat differently grouped and subdivided. On the income side there appears first the surplus transferred from the operating account of households, which in this example is composed entirely of the estimated surplus on the occupation of owner-occupied dwellings. Following this there are credited interest from the foreign lending service and dividends from the rest of the world. The remaining entries represent transfers from other sectors of the British economy. The first of these is interest from the home lending service and this is followed by dividends from enterprises, entrepreneurial withdrawals, wages and salaries, and transfer incomes such as social security benefits and war pensions and gratuities receivable from the appropriation account of public collective providers.

On the outgoing side the four entries cover consumers' expenditure, direct taxes levied on income, and saving. Consumers' expenditure is shown in two items, the first being the value of purchases from the operating account of households, while the second represents tourist expenditure abroad. As already mentioned, the latter is treated as a direct appropriation account debit, and if the proper distinction between individual and household spending units were to be followed, it would be reasonable to treat a number of items of consumption expenditure in the same way. The figure for direct taxes levied on income is the same as that given in Cmd. 7649, while the figure for saving represents the sum of direct taxes levied on capital, additions to tax reserves, and net saving. The second item, additions to tax reserves,² is treated as an element of saving since the liability is for the most part not legally due in the period of account. Direct taxes levied on capital are included in saving

since they are regarded in this example as an outgoing from the resting account.

The appropriation account of public collective providers contains on the incoming side revenue from indirect taxes and direct taxes levied on income together with various forms of income from property and the (negative) operating surplus transferred from the operating account.

The first two entries on the outgoing side of this account represent respectively the purchase of goods and services from the operating account and the sum due to the home lending service in respect of interest on the national debt. It will be seen that the sum of these two items which represent expenditure on goods and services is equal to the corresponding figure shown in Cmd. 7649 together with interest on loans raised by the rate fund services of local authorities which, as already mentioned, are not here treated as consumption loans. Apart therefore from this minor change of definition, the estimate given here for expenditure on goods and services is the same as that in Cmd. 7649.

The remaining entries represent subsidies payable to enterprises, transfer incomes payable to households, and the residual entry or saving of public collective providers which is transferred to their resting account. This last entry differs from the figure given in Cmd. 7649 by the addition of certain transfers to private resting accounts, which are here treated as payable out of the resting account of this sector, and by the deduction of direct taxes levied on capital which are here treated as receivable into the resting account of this sector.

Little discussion is required of the appropriation account of labour services. The only incoming item is the surplus from the operating account, and the only outgoings are wages and salaries payable to the appropriation account of households.

A similar treatment is followed in the appropriation account for the home lending service. The operating surplus equal to the revenue receivable from all forms of loan is the only incoming item, while the various outgoing items represent interest payable to the rest of the world and to the various other sectors of the British economy.

It will be noticed that in the second form of presentation in the diagrams at the end of this paper all interest and dividends due to, or receivable from, the foreign lending service or the rest

of the world have been grouped together immediately under the operating surpluses of the different sectors. By adding to the operating surplus of each sector the net income from interest and dividends due from abroad, we convert the net geographical product at factor cost into the national income, and this figure is shown as a separate line in the table. The national income could, of course, equally well be derived by taking a similar balance on the consolidated appropriation account of the different sectors.

XVII. THE RESTING ACCOUNTS

The incoming entries into the resting account for enterprises are provision for depreciation and saving, together with certain capital transfers from public collective providers, in particular war damage claims and Excess Profits Tax refunds. On the outgoing side there appear gross asset formation, the compensation paid to doctors and dentists (the entry is a negative item representing the purchase of the goodwill of doctors' and dentists' practices), the value of the change in inventories and three entries representing net lending and debt reduction by enterprises to households, public collective providers and the rest of the world.

It will be observed that a number of capital transfers appear in the resting accounts of this system, so that in any sector of the economy saving is not necessarily equal to fixed asset and inventory formation plus net lending and debt reduction. If it were thought desirable that this equality should hold for each sector, then it would be necessary for the capital transfers in this sector (war damage claims and Excess Profits Tax refunds) to be shown as an incoming into the appropriation account. I have preferred the treatment given because I think there is a useful distinction between income transfers and capital transfers. Excess Profits Tax refunds are made against evidence of capital expenditure and are not therefore available as disposable income. Also war damage claims are in many cases met by the payment of the cost of repairs and rebuilding, though in certain cases of total loss a value payment is made which is not tied to specific capital development.

Although in general very little subdivision can be made of the accounts of enterprises from the information given in Cmd. 7649, it is possible to make a rough division of the main resting

account entries for government trading services and other enterprises. This is done in the following table, which is of some interest because in 1948 the sale of surplus stores by the central government (which appear in this example in the figure for the value of the change in inventories held by enterprises) was considerable and in the opposite direction to the change in the value of inventories held by private enterprises.

Resting Accounts for Enterprises

(a) ENTERPRISES OTHER THAN GOVERNMENT TRADING SERVICES

1. Fixed asset formation	1,432	6. Depreciation provision	657
2. Compensation to doctors and dentists	-3	7. Saving	555
3. Value of the change in inventories	317	8. War damage claims	115
4. Lending and debt reduction	-404	9. Excess Profits Tax post-war refunds	15
5. Total payable	1,342	10. Total receivable	1,342

(b) GOVERNMENT TRADING SERVICES

11. Fixed asset formation	54	16. Depreciation provision	24
12. Purchase of surplus stores	-212	17. Saving	—
13. Value of the change in inventories	27		
14. Lending and debt reduction	155		
15. Total payable	24	18. Total receivable	24

The entries in this table largely follow from the figures given in the note to item 26 in section XII above.¹ It will be seen from this table that largely because of the size of the amount received from the sale of surplus stores a considerable balance available for lending and debt reduction arose on the resting account of government trading services.

The situation of private enterprises was, of course, quite different. In their case fixed asset formation and the increase in inventories were very large in comparison with the sums going into their resting account. As a consequence it was necessary for them to borrow from other sectors on a considerable scale, though it is known that by way mainly of short-term commercial credits exporters, included of course in private enterprises, were lending a considerable sum to the rest of the world. It appears

¹ See pp. 44 *et seq.*

from the above table that, when allowance is made for the credits extended by exporters, the net borrowing of private enterprises from other sectors of the British economy amounted to something of the order of £500 million.

The resting account for households presents no new problems. On the incoming side there appear depreciation provision in respect of owner-occupied houses, saving, and war damage claims received. On the outgoing side there appear capital expenditure in respect of owner-occupied houses, together with direct taxes levied on capital and net lending and debt reduction to enterprises and public collective providers. In fact it appears that the sums lent net to enterprises were considerable while a substantial amount of central government debt previously held by households was retired.

The resting account of public collective providers contains some more interesting entries. On the incoming side there appear depreciation provision in respect of fixed assets other than those held by public enterprises and trading services, saving, direct taxes levied on capital (which appear here as a credit item), and gifts received under the Economic Recovery Programme. On the outgoing side there appear first three entries making up the fixed asset formation of public collective providers. The largest one represents purchases from British enterprises in respect of new capital development and repairs and improvements met out of the depreciation provision. The second, which is negative, represents the sale of existing assets to the Government of India under the agreement of July 1948, while the third, a very small item, represents the purchase of the goodwill element in the practices of doctors and dentists. Of the remaining outgoings, two represent capital transfers, namely war damage claims and Excess Profits Tax refunds, and three represent net lending and debt reduction to enterprises, households and the rest of the world. As might be expected in view of the Chancellor's anti-inflationary fiscal policy and the gifts under the Economic Recovery Programme, the amount of net lending and debt reduction was considerable, being in the neighbourhood of £290 million.

The consolidated position is shown in the consolidated resting account. In the present example saving is not equal to net fixed asset and inventory formation plus net lending and debt reduction, even for the British economy as a whole, because gifts

under the Economic Recovery Programme have been treated as an incoming into the resting account.

XVIII. THE ACCOUNT FOR THE REST OF THE WORLD

Little need be said about the entries in this account since they are simply the loose ends arising on the accounts already discussed. On the incoming side there appear sums due in respect of goods and services imported into the United Kingdom together with interest and dividends due from the United Kingdom. On the outgoing side there appear proceeds from the sale of British exports together with the sum due in respect of assets taken over by the Government of India, interest and dividends due to the British economy, the gift under the Economic Recovery Programme and a final element of net lending and debt reduction. This final element is negative in the present example, indicating that the rest of the world was in 1948 borrowing from the United Kingdom. This of course is different from the figure shown in Cmd. 7649 and the White Paper dealing with the balance of payments (Cmd. 7648, March 1949). The reason is that the gift under the Economic Recovery Programme has been treated as a gift by the rest of the world and not as a loan, and also that an attempt has been made, using the figures given in Cmd. 7649, to put British exports on to a receivable basis, with the consequence that a figure of £125 million appears as a credit or loan by British exporters to importers in the rest of the world.

XIX. A DESCRIPTION OF AN ACCOUNTING SYSTEM IN TERMS OF THE THEORY OF SETS

This paper is largely concerned with the problems of classifying transactions and with ensuring consistency in their treatment. It has also been necessary to consider the effect of the operation of consolidation on the elements of a system of accounts. Most of the discussion has been in economic terms and much of it has been quite specific in character, dealing with actual transactions that happen to have been important in the practical example. For the benefit of those who prefer a greater generality of treatment I have tried in this section to give a brief but abstract statement of what is involved in classifying

transactions, ensuring consistency and consolidating accounts in a closed system. These remarks may be helpful in tracing the relationships between the familiar aggregates viewed as rearrangements of the entries in a very small number of consolidated accounts.

Let us suppose a closed economy in which we can identify over a given period every transaction, and let us denote this set of transactions by T . Every element of T may be regarded as a receivable and again as a payable, thus forming two partitions of T which we will denote by R and P respectively. Each element of R and of P may be classified according to three criteria in such a way that there is no element common to any two subsets of R or of P arising from these classifications, while the union of all subsets of R and of P yields T identically. The first of these criteria is the transactor involved which for any transaction may or may not be the same in R and P . The second is the form of activity in respect of which the transaction arises, which again may or may not be the same in R and P . For example the purchase of materials by one business from another arises in respect of production activity in both cases, while the purchase of new capital equipment by one business from another arises in respect of production activity from the point of view of R and in respect of adding to wealth from the point of view of P . Finally the elements of R and P may be classified according to the object of, or consideration received in respect of, the transaction. This criterion must necessarily be the same in R and P for any element in T . Thus we may denote the subsets of R by symbols of the form R_{iaa} , where $i = 1, 2, \dots, N$ denotes the transactor, $a = 1, 2, \dots, n$ denotes the form of activity and $a = 1, 2, \dots, v$ denotes the consideration. In a similar way we may denote the elements of P by P_{iaa} . The elements of these subsets, that is in any case the individual like transactions, could be denoted by symbols such as r_{ias} , p_{ias} , where $s = 1, 2, \dots, m$, but in practice we shall hardly need so fine a classification. In practice we are likely to be interested in the milk bought by consumers from producers, and not in each individual bottle bought by consumer A from producer B .

In this notation a class of like transactions, which I shall in future refer to as a transaction, is represented by an object which belongs to both R and P and may be denoted by the symbol $R_{iaa} \cap P_{jba}$ with no restrictions on the suffixes i, j, a, b

and a except perhaps that if $i=j$ we should not expect to find $a=b$.

To each element of R , P and T we may assign a measure, usually expressed in terms of money, and denote by P , Π and T the measures associated with R , P and T . Since these measures are additive we have

$$(1) \quad \sum_i \sum_a \sum_\alpha P_{ia\alpha} = \sum_i \sum_a \sum_\alpha \Pi_{ia\alpha} = T$$

Since there is a one-one correspondence between the elements of R and P and the elements of P and Π we may conduct the greater part of the following argument in terms of either pair of sets.

An accounting system comprising the elements of T consists of a dual partition of all the elements of T into sets R and P , subject to a number of constraints of the form

$$(2) \quad \sum_\alpha P_{ia\alpha} = \sum_\alpha \Pi_{ia\alpha} \text{ or } P_{ia} = \Pi_{ia}$$

These constraints ensure that there is for each transactor one balancing statement or account in respect of each form of activity. Since $P = \Pi = T$ the number of constraints is equal to the number of parts in the partition of P into subsets of the form P_{ia} less one. If each transactor takes part in each form of activity, as in general is the case, then the number of constraints is $(Nn-1)$.

The character of an accounting system will depend on the definition of the variable factors i , a and α and on the way in which they are classified. In the case of α there is clearly scope for a large number of separate classes. However much we simplify the accounting system it seems desirable that all unilateral transactions or mere transfers should be kept distinct from transactions in which a specific good in the widest sense of the term passes in the opposite direction to the monetary flow.

In the case of a , it has already been suggested that there are three basic forms of economic activity, so that a may take the values 1, 2, 3 associated respectively with production, consumption and adding to wealth. Finally, in the case of i , there is again a great deal of latitude both in the matter of definition and of classification. This will later be illustrated by an example.

By a consolidated system of accounts we normally mean a

system in which the accounts for different transactors are combined and the common elements are cancelled out. In this case the set T is reduced by the elimination of all elements contained in subsets of the form $R_{a\alpha} \cap P_{a\alpha}$ and the remainder is partitioned into a number of blocks of transactions of the form $R_{a\alpha} \cap P_{b\alpha}$ where $a \neq b$. In this notation $R_{a\alpha} = \bigcup_i R_{ia\alpha}$.

The money measures of the elements of R and P which appear in (2) may be written in the form

$$(3) \quad P_{ia} \cap \Pi = \Pi_{ia} \cap P$$

If we ignore transactions, if any, within accounts, we may write, owing to (2),

$$(4) \quad P_{ia} \cap \Pi'_{ia} = \Pi_{ia} \cap P'_{ia}$$

where Π'_{ia} , P'_{ia} are the complements of Π_{ia} and P_{ia} in Π and P . A consolidation of all accounts other than the account of transactor i in respect of the form of activity a will give correspondingly

$$(5) \quad P'_{ia} \cap \Pi_{ia} = \Pi'_{ia} \cap P_{ia}$$

which, of course, is identical with (4) except that the two sides of the equation are interchanged. Thus, for example, if a stands for the form of activity production, the consolidated account for production is identical with the consolidated account for everything else, except that what appears as an element of P in one will appear as an element of Π in the other and *vice versa*.

We have complete freedom to classify the factor i in any way we please. If we consolidate the sets over i so as to present the system in consolidated form we will write $P_{a\alpha}$ for $\sum_i P_{ia\alpha}$ and $\Pi_{a\alpha}$ for $\sum_i \Pi_{ia\alpha}$. In consolidated form any two accounting systems

are identical provided that any elementary transaction which appears in the subset $P_{a\alpha} \cap \Pi_{b\alpha}$, $a \neq b$, in one system also appears in the same subset in the other.

This proposition can be illustrated by the treatment of death duties discussed in section I above. Let us denote the forms of activity production, consumption and adding to wealth by the numbers 1, 2, 3. In these terms it has been suggested that death duties may be treated as $P_2 \cap \Pi_3$, $P_2 \cap \Pi_3$, $P_3 \cap \Pi_3$. If the system is consolidated, the first and third methods will give

identical results but the second will give a different result.

If the consolidation is not carried out fully over the N values of i , but if instead these N values are consolidated into subsets which we will denote by I , then the condition that two accounting systems should be identical in consolidated form is that any elementary transaction which appears in the subset $P_{Ia} \cap II_{Ja}$, $I \neq J$ or $a \neq b$ or both, in one system also appears in the same subset in the other. Thus if we divide N into two subsets, 1 and 2, representing private and government transactors respectively, then the two sets $P_2 \cap II_2$ and $P_3 \cap II_3$ in the above example become $P_{22} \cap II_{12}$ and $P_{23} \cap II_{13}$. Since in this case $I \neq J$ and the two subsets are not the same the accounting systems are different. In this example the difference lies in the allocation of saving to the two sectors of the economy.

XX. CONCLUSIONS AND ACKNOWLEDGMENTS

In this paper I have tried to lay out a form of social accounts which will be generally useful for economic analysis and policy. The system which emerges is intended to satisfy certain theoretical criteria and at the same time to be capable of practical realization. In the work of classifying and distinguishing between transactions it is quite likely that I have gone too far for some people and not far enough for others. Those who think I have gone too far might say for example that the distinction between direct and indirect taxes or between subsidies and income transfers made by the state is essentially arbitrary and so ought not to be made. I do not believe this is so. The distinction between direct and indirect taxes that can be made in practice compares favourably, I think, with the estimates available for, say, depreciation provision. The distinction cannot reasonably be rejected on the grounds of its unimportance. For if we abandon it we must either do without the concepts of net geographical product at factor cost and national income altogether, or we must change their meaning radically by defining them to exclude all taxes and include not only subsidies but also income transfers from the state. Such a procedure would be unfortunate for many purposes and in particular would diminish the value of industrial subdivisions of net product.

Those who think I have not gone far enough may wish to see a much more searching treatment of costs, e.g. on the labour

service account, a greater willingness to make imputations of activity in the case of non-profit-making bodies of all kinds and a bolder treatment of asset formation and saving by these bodies. My principal reason for not going further in these matters is that I do not know how to. I feel, for example, that I have enough data to make a reasonable distinction between direct and indirect taxes but not to estimate depreciation provision on consumers' durable goods. While this means that there are some questions which my system, in common with most systems adopted in practice, cannot answer, it is fair to point out that there are also many questions that can be answered without tackling these more difficult problems.

Apart from the substantial question of how far we go in making distinctions there is the subsidiary question of how we assign perfectly distinct items to the accounts. I have already given reasons for wishing to treat certain transactions as capital transfers. One consequence of doing this is that saving is not defined equal to asset and inventory formation plus net lending and debt reduction either for a sector or even for a whole open economy. Those who would like to retain this equality must do away with the distinction between current and capital transfers and treat all transfers as current. If this is done however income will only equal consumption plus saving if it is defined to include capital transfers and these transfers will themselves come to be included in saving. The important thing in such cases is to show the different items separately so that different investigators can arrange them according to their tastes. It is undesirable, in my view, to treat such transactions as gifts under the Economic Recovery Programme as a part of the borrowing of the recipient (as is done in Cmd. 7649) since gifts are different from borrowing even if it is hard to say whether they are current or capital transfers.

In writing this paper I have had the great advantage of talking over many of the subjects discussed with a number of friends who have been working on these problems for many years. In particular I should like to record the valuable discussions I have had with Messrs. F. S. Bray and J. E. G. Utting of the Department of Applied Economics, Mr. E. F. Jackson of the Central Statistical Office, and Messrs. O. Aukrust and J. Marczewski of the National Accounts Research Unit of the Organisation for European Economic Co-operation. I should also like to record

the mental stimulus received from my colleagues on a joint sub-committee of accountants and economists brought together by the Institute of Chartered Accountants and the National Institute of Economic and Social Research to discuss terms and concepts in common use by accountants and economists. Needless to say no one but myself is responsible for any errors or opinions that appear in this paper.

EXPERIENCES IN THE USE OF SOCIAL ACCOUNTING IN PUBLIC POLICY IN THE UNITED STATES

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INTRODUCTION

A SKEPTIC, asked about the use of social accounting in the determination of economic policy in the United States, might well answer that public policy in the United States has been guided neither by social nor by any other kind of accounting. Although it is true that national accounts have been used increasingly in the debates on public policy, it is difficult to evaluate the contribution that national accounting has actually made in the *determination* of public policies. Unless on guard, the enthusiastic disciple of the new art of national accounting may easily become a victim of delusion, particularly if he has an opportunity to address such a distinguished group of fellow workers. To avoid this danger I will emphasize the potential rather than actual use of national accounting. This modification of the topic assigned to me is, I believe, called for by the fact that national accounting in the United States has not yet been used in the same definite operational manner in which it has been used in some of the other countries that are included in this discussion.

In this paper, then, I shall review only briefly (1) the evolution of economic and fiscal policies and national economic accounting in the United States; (2) the methods of national accounting that have been developed in the United States; (3) the use that national accounting could have in economic stabilization and other policies in the United States. Finally (4) I would like to close with some comparisons of the role of national economic accounting in countries of predominantly free enterprise with its role in countries with a higher degree of regulation.

Before I enter the subject of my paper, allow me to make a few terminological remarks.

1. The term 'accounting' may be misleading if it is understood to mean that the results are as accurate as business accounting is supposed to be. The term is used in order to suggest that

national economic accounts are tailored for use by those concerned with the formulation of economic policy, just as business accounts are designed for use of business management.

2. I have been referring to economic rather than social accounting, and I hope you will bear with me if I stick to this terminology which I believe is preferable. National economic accounting suggests the computation of aggregates and significant component parts of national income, national expenditures, assets, and liabilities. Social accounting, on the other hand, may be understood to mean an endeavor to measure the welfare aspects of economic transactions. I intend to touch upon the relationship between national economic accounts and the general welfare in the concluding section of this paper, but by using the term 'national economic accounts' I would like to emphasize that no attempt is made to measure social benefits or social costs except to the extent that they are reflected in aggregates and parts of national income and national expenditure.

3. One final terminological comment: National accounts present transactions of the economy as a whole¹ and in significant standardized breakdowns in a manner suitable for use in policy formulation. They denote a specific form of presenting economic data. The data themselves may relate either to the record of the past, or may incorporate forecasts, or may present statements of attainable objectives for the future. I suggest that projections made into the future under various alternative assumptions of policy be called economic 'models'. Models are used to demonstrate the anticipated effects of policies that are under examination.

To the extent that national economic accounts are used as a basis for formulating attainable objectives for the future, they are often called national economic budgets. They should be distinguished from economic forecasts with which I do not intend to deal in detail in this paper.

¹ In this discussion I do not include accounts related only to sectors of the economy as they are presented, for instance, in the international balance of payments, or in accounting statements for agriculture, or in economic accounts for particular regions of the country.

I. THE EVOLUTION OF ECONOMIC AND FISCAL POLICIES AND NATIONAL ECONOMIC ACCOUNTING IN THE UNITED STATES

1. *Estimates of national income for records of past achievements*

The history of economic policies and economic statistics is closely interrelated. At times when economic policy was mainly concerned with trade or production of specific industries and commodities, emphasis was on specific operational statistics of international trade and domestic production.

During these periods, estimates of national income and wealth were mainly of an 'academic' character. These estimates became available years after the event and were used largely for a historical appraisal of economic trends and achievements. They were of interest and significance because they played a role in the ideological battle between the defenders of the capitalistic enterprise system and its social or socialistic critics. Emphasis was on the measurement of the increase in real income and wealth, on size distribution and concentration of income and wealth, and on similar questions. The use of these estimates was not directly related to the formulation and execution of policies.

2. *Measurement of national income and the government net contribution as a basis for compensatory fiscal policy during the depression*

Beginning with the Great Depression, however, public policy became directly concerned with changes in employment, production, and purchasing power on a national basis. Up-to-date estimates of national income were needed to appraise the effect of government policies and as a basis for policy formation.

In this period the government's 'net contribution' to disposable income was computed by economists of the Federal Reserve Board by making adjustments in Federal expenditure and revenue figures.¹ In order to estimate the 'income-creating' effect of the net contribution thus computed, it was necessary to relate it to current estimates of national income, saving, and business investment. These statistical analyses aimed at measuring the effect of fiscal policy on consumer incomes and expendi-

¹ For an explanation of the computation of the government net contribution, see Temporary National Economic Committee Hearings, Part 9, pp. 3528-30 and 4011 and 4017; and an unpublished manuscript entitled 'Review and Analysis of Monetary and Fiscal Policy, 1919 to 1939', prepared by Bertrand Fox for the Committee for Economic Development, 1948. Besides the 'net contribution', the Federal Reserve Board also computed gross figures which have become a regular Treasury publication, Federal 'cash income' and 'cash outgo'.

tures ('multiplier' effect) and on business investment ('acceleration' effect). The appraisal of fiscal policy in the light of national income, consumer expenditures, and business investment during the recovery effort may well be regarded as the origin of national economic accounting in the United States. National economic accounting became a necessity when government budgets began to be viewed as a means to aid in balancing the economic accounts.

We cannot claim that during the early part of the New Deal the policy of the Federal Government was guided by the intention to promote recovery through compensatory public spending. It is probably more correct to say that in this period the government found itself impelled to increase spending in order to take care of those who suffered most from the depression. At the same time it simply proved impossible to raise sufficient taxes to meet rising expenditures. Thus income-creating deficits resulted from fiscal and political necessities rather than from a deliberate recovery policy. However, the more sophisticated – and during this period this meant Keynesian-trained – economists in the Federal Government interpreted the result of this policy in terms of the income-creating effect of the government's net contribution.

In 1937, partly as a result of the beginning of collection of social security taxes (without corresponding disbursements of social security benefit payments) the government net contribution dropped sharply. At the same time recovery suffered a very sharp setback. The statistical relationship, shown in the estimates of the government net contribution and national income, was interpreted as a causal relationship, and a program of compensatory fiscal measures was recommended on that basis and submitted in a Presidential message to Congress on 14th April 1938.

Early during the depression the Department of Commerce had taken over the various statistics of national income and expenditures from the National Bureau of Economic Research. Spurred by the increasing use of national income and expenditure statistics for purposes of policy during the depression, the Department of Commerce made great efforts to improve these estimates and to compile them as promptly as possible. At the end of the 1930's these estimates had become a regular element in the Federal statistical service.

3. *Measurement of the inflationary gap during the war*

At the beginning of the defense effort in 1940 the government had much better statistical tools available than at the beginning of the depression; economists also were better trained to use these tools.

Throughout the defense and war period, government economists estimated the anticipated impact of rising military expenditures on national income and the magnitude of the inflationary gap created thereby. These estimates were used for the formulation of wartime fiscal programs, and for appraising the inflationary pressure which had to be dealt with by direct price controls and rationing. While the experts¹ made significant use of projections of national income and production as a basis for the fiscal and economic programs which they recommended, actual policy was determined to a greater extent by what was regarded as politically feasible and acceptable.

Nevertheless, methods for establishing attainable economic objectives in terms of targets for war production, civilian consumption, and price stabilization were greatly improved during these war years. The use of national income and expenditure projections for measuring the inflationary gap and for appraising the adequacy of government programs familiarized not only many economists but also congressmen and businessmen with these new tools of national accounting. The idea of establishing national objectives for the war effort helped to create a concept that was subsequently used also in connection with postwar problems.

4. *Measurement of the task of postwar reconversion*

During the war, in the United States as elsewhere, attempts were made to foresee the problems that labor, business, farmers, and the government would have to face in the task of reconversion from war to peace.

¹ Most of these efforts are incorporated in unpublished office memoranda. The work was carried on particularly in the Office of Price Administration, the War Production Board, the Budget Bureau, the Treasury, and the Federal Reserve Board. One private study by Carl Shoup, Ruth Mack, and Milton Friedman, *Taxing to Prevent Inflation*, was published in 1943 (Columbia University Press, New York). An interesting use of national accounts for purposes of international comparison was made in a report to the Combined Production and Resources Board by a special combined committee, *The Impact of the War on Nonfood Consumption Levels in the United Kingdom, United States, and Canada*, September 1945, Washington, D.C. Some of this work is reflected in a general way in the Budget Messages of the President during the war years, and in testimony of the Treasury and the Office of Price Administration before congressional committees.

One of the earliest studies of postwar problems during the war was prepared in the Department of Commerce and published in 1943 under the title *Markets After The War*. Potential markets for a variety of products were estimated on the assumption of full employment incomes after the war. This study was widely distributed among businessmen and may have aided in raising their sights in preparing for market opportunities in the postwar period.¹

Towards the end of the war, when measures for facilitating demobilization and reconversion were in preparation, large 'frictional' unemployment was expected to result from the rapid discharge of millions of soldiers and the sudden cancellation of war contracts.² Fortunately, no unemployment of such large dimension occurred. This error, however, discredited economic forecasts to a considerable extent, and resulted in a good deal of skepticism among economists and statisticians concerning the ability to forecast. The emphasis was shifted towards a more basic analysis of the factors of strength and weakness in the economy. It was believed more important for policy formulation to indicate the adjustments in economic relations that are needed to approximate desirable goals than to try to predict exactly the turning points in the cycle.

During the depression, attention had been focused on the effect of the government 'net contribution' to disposable income as a recovery measure. During the war period the absorption of some of the war-created 'excess' purchasing power was the main problem. For an appraisal of the postwar problems it was recognized that a greater variety of partly independent factors had to be evaluated. Besides the anticipated reduction in government operations there were the backlogs in consumer expenditures, and the desire of business to replenish depleted inventories and to modernize and expand plant and equipment. Drastic changes

¹ See *Markets After The War*, by S. Morris Livingston, U.S. Department of Commerce, Washington, D.C., 1943. It is of interest to compare the correlation method used by the Department of Commerce with the input-output technique used subsequently by the Bureau of Labor Statistics in the study 'Full Employment Patterns, 1950', *Monthly Labor Review*, February and March 1947, U.S. Department of Labor, Washington, D.C. (see below, p. 86). Here should be mentioned also a study prepared by W. S. Woytinsky for the Social Security Administration, 'Postwar Economic Perspectives', Parts I-IV, in the *Social Security Bulletin*, December 1945, January, February, and March 1946. In 1947 the Twentieth Century Fund published a study of economic objectives and targets entitled *America's Needs and Resources*.

² See, for instance, 4th Report, Director of War Mobilization and Reconversion, Washington, D.C., 1st October 1945, p. 13.

in international transactions had to be taken into account, and the effects of each of these changes on all other factors had to be considered. Global estimates or projections of national income, correlated with the government's net contribution, were no longer sufficient. A statement of national income and expenditures, the Nation's Economic Budget, was needed to analyze changes in the significant component parts of the economy and to evaluate them in their mutual interrelationship.¹

One such attempt was the statement of 'The Government's Budget and the Nation's Budget', which was first incorporated in President Roosevelt's Budget Message of 3rd January 1945. This statement was based on the Department of Commerce estimates of gross national income and expenditures and the Budget Bureau's estimates of the government's consolidated cash budgets.² It included a consumer account, a business account, an international account, and a government account. President Roosevelt presented this table as a basis for outlining the post-war task of achieving full employment and economic stability.

Senator Murray's Full Employment Bill of 1945 provided for a national economic budget that was to be the instrument for the formulation and presentation to Congress of an annual full employment program. The final Employment Act of 1946 no longer used the term 'national economic budget' and was less specific than the original bill with respect to the statistical estimates which were to be used as a basis for policy formulation. Nevertheless, the Act still requires the President to submit in his Economic Report (a) estimates of 'needed levels' of employment, production, and purchasing power; (b) a statement of 'current and foreseeable trends' in employment, production, and purchasing power; and (c) a recommendation of economic policies that he deems necessary to achieve the needed levels. This Act thus requires the President to base a review of economic

¹ The first statement of the Nation's Budget was published in an article by Grover W. Ensley, 'A Budget for the Nation', *Social Research*, September 1943, Vol. X, pp. 280-300 (New York).

A group of government economists cooperated with staff members of the National Planning Association in projecting 'National Budgets for Full Employment' (Planning Pamphlets No. 43 and 44, Washington, D.C., 1945). These estimates suggested three different ways in which full employment could be accomplished in the postwar period, either through large government budgets, or through large business investments, or through a high level of consumer expenditures. There were substantial increases - as compared with the prewar level - in all three categories at the same time which partly explains the inflationary pressure that actually occurred in the postwar period.

² For an explanation of the consolidated cash budget, see below, p. 84.

programs and his policy recommendations on a statistical statement and an appraisal of economic objectives and trends. I do not think I am stretching the language of the law too far if I say that this legislation suggests that economic policy recommendations be based on national economic accounts as the term has been used in this discussion.

Actually the Nation's Economic Budget statements have been published only for periods of the past in official documents. But estimates for the most recent past have been used as a basis for a qualitative analysis of foreseeable trends, particularly in appraising the inflationary pressures in recent years and the likelihood and intensity of possible future deflationary trends. The appraisal of these trends in turn was used for the consideration of appropriate fiscal and other economic policies.

Only in passing should I add here that this type of aggregate analysis had to be supplemented by other data, particularly on wages and prices. The national budget approach does not lend itself easily to a consideration of the wage-price spiral, which has played an important role in the recent inflationary development.

In the subsequent section I will explain briefly the method of national accounting used in connection with the Economic Reports.

II. METHODS OF NATIONAL ACCOUNTING IN THE UNITED STATES

An Appendix to this paper gives an example of the Nation's Economic Budget in the form in which it is currently used in the President's Economic Reports and in the Reviews of the Council of Economic Advisers. Also given are some details of the consumer, business, international and government accounts for the years 1939 and 1948. The national accounts have been published only for periods of the past. They have been used as a basis for qualitative statements in the text on 'foreseeable' trends and for projections of attainable objectives for selected items.

The table does not need much explanation for those familiar with problems of national economic accounting and budgeting. Basically, it presents a double entry system in which each economic transaction appears once as a receipt and once as an expenditure item.

The breakdown into consumer, business, international, and

government as the major accounts is natural for any accounting system which is to be used for policy purposes. The mechanism by which operating decisions are made in each of these categories is different, and different policies affect consumer behavior, business investment, foreign transactions, and government transactions.¹

It will be noted that the business account includes on the receipts side only undistributed profits and the addition to business reserves after taxes, and on the expenditure side all investment in plant and equipment, new construction, and inventories.

As the table is broken down by consumer, business, international, and government accounts, it shows for each one of these groups the excess of receipts over expenditures or the excess of expenditures over receipts, thereby demonstrating the interlocking of the various elements in the economic system.

Looking, for instance, at the figures for 1948, it is shown that the net savings of consumers, plus the excess of receipts of the government, equal the excess of business investments plus the excess of foreign investments, after some allowance is made for statistical inaccuracies and some other technical adjustments. Thus saving and investment are demonstrated in their interrelationship.

Those who like to relate the national economic accounts more directly to business accounts might prefer to include all gross receipts and gross expenditures of businesses. The inclusion of those gross figures in the Nation's Economic Budget would lead, however, to double and triple counting. Business receipts from consumers, government, and foreign countries are reflected in consumer and government expenditures and exports. Business expenditures are reflected in the stockholders' and workers' incomes, government tax receipts and imports. Therefore it would be necessary to deduct from the gross transactions of business all those that are reflected in other accounts. In the system of accounts which has been used by the Council of Economic

¹ Any attempt to divide the economy into significant sectors runs into difficulties that require more or less arbitrary decisions. For instance, farmers or owners of unincorporated businesses have a 'split personality'. Their net income from business is treated as personal income; that part of their income reinvested in their farms or businesses appears as personal saving; expenditures for inventories, plant and equipment appear as business investment. Also the construction of a home by the owner-occupant is treated as a business investment. Consumer income and expenditures include an allowance for imputed rent.

Advisers and the Department of Commerce business gross receipts and gross expenditures have not been included because no good way has been found that would not complicate these summary statements more than the added detail seems to be worth.

The government account includes Federal, State, and local government transactions. The Federal transactions are based on the consolidated cash budget rather than on the conventional budget. The consolidated cash budget includes all cash receipts from the public in the form of taxes and other revenues. On the expenditure side it includes all cash disbursements to the public. The consolidated budget reflects transactions of general and special Treasury accounts, Government corporations (net), or Federal trust accounts. Expenditures include those for the purchase of goods and services as well as for transfer payments.¹ Only excluded are noncash transactions and transfers among various government accounts. The inclusion of government expenditures for transfer payments in addition to those for goods and services gives a more complete picture of the immediate impact of government transactions on the national economy as a whole than those statements which exclude transfer payments, or than the conventional budget statements. The consolidated cash budget is directly derived from and is reconcilable with the official budget estimates.² Government transfer payments are given separately (in lower-case letters) and they can be traced back (allowing for some time lag and statistical discrepancies) through the system because they appear also (in lower-case letters) as consumer receipts from transfer payments, as business receipts, and as government loans transferred abroad in the international account. (See Appendix, Table 1.)

It is by no means claimed that these tables reflect anything like an ideal and complete system of national accounting. This system of national accounts is but one form of presenting

¹ The Post Office, like Government corporations, is treated on a net basis. It would be most logical to classify quasi-commercial Government corporations as businesses which then could be subdivided into private and public enterprises. The present data, however, do not permit a separation of the quasi-commercial from the other activities of Government corporations. (See also the discussion of Administrative Departments and Trading Departments in J. R. Hicks' *The Problem of Budgetary Reform*, Oxford, 1948.)

² The consolidated cash budget computation is presented in one of the tables in the Budget document and corresponds to the monthly Federal 'cash income' and 'cash outgo' series published by the Treasury Department (see above footnote 1, p. 77).

national income and national expenditure estimates in what is believed to be a significant and usable combination.

When the need arose for presenting a concise picture of the major component parts of the economy in their interrelationship, it was not possible to start from scratch with a system of national accounting that would fulfill all desirable requirements.¹ A compromise had to be made between the data believed desirable for policy use on the one hand, and the estimates that were readily available. On the basis of methods developed in the Department of Commerce it was possible to obtain quarterly estimates even shortly before the end of the period to which the figures pertain. Thus the Economic Report published at the beginning of January presents preliminary data for the whole preceding year.

It was also believed necessary to tie in the basic concepts of the Nation's Economic Budget with the concepts of national income and expenditure with which the public had become familiar through the work of the National Bureau of Economic Research and the Department of Commerce. Thus the Nation's Economic Budget was so defined that its total is identical with the gross national product. With respect to government transactions, a concept had to be used that permitted ready reconciliation with the official budget estimates in order to minimize public confusion.

While this statement of the Nation's Economic Budget has proven useful for broad policy purposes, it is recognized that a fully developed system of national accounts should also include other information. It is obvious that any attempt to depict the status of the economy in such a highly condensed form must omit much relevant detail and must be supplemented by many other statistics. To mention only one example: the national income and expenditure estimates do not depict changes in assets and liabilities. It would be desirable if national income and expenditure accounts could be supplemented by national balance sheet accounts.

It has been suggested that national economic accounts should flow directly from individual and business accounts. I do not think that it is a defect of these estimates that they are derived

¹ See, for instance, Richard Stone's report in the United Nations publication, *Measurement of National Income and the Construction of Social Accounts*, Studies and Reports on Statistical Methods No. 7, Geneva, 1947.

from statistical estimates rather than directly from business accounts. Business accounts are devised for the purpose of facilitating the management of individual firms. A national accounting system should be so devised as to give the most concise information needed for national economic policies. Estimates of national income and expenditures seem to serve this purpose even though they do not present all the information that would be desirable.

It is very fortunate that fundamental research work in the methods of national accounting is being carried on, for instance, by Morris Copeland, with the support of the National Bureau of Economic Research and the Federal Reserve Board. He is in the process of developing a system of accounts that depicts the money flows in the economy, and relates gross receipts and expenditures (from non-borrowing-and-lending transactions) both to the national income and expenditure accounts and to changes in cash balances, portfolios and debts. But this work is not sufficiently advanced to have these estimates so up to date as the current estimates of national income and expenditures. Therefore they are not yet available for policy use.¹

I should mention another supplementary development which I believe is of great significance for the projection of national accounts into the future and for policy consideration, namely, the inter-industry relationship studies which have been initiated by Professor Leontief, of Harvard University, and which at the moment are being carried on by the Bureau of Labor Statistics in the Department of Labor. These studies present a system of input-output relationships between labor, raw materials, and industrial facilities² on the one hand, and output of a specific commodity on the other hand. When fully developed, these methods will permit the computation of the impact of, for example, changes in government programs on the demand for labor and materials and on needed capacities. This is an essential auxiliary tool in projecting national income and expenditures and translating the aggregates into specific requirements of labor, materials, and facilities.

¹ Changes in liquid assets, as in many other statistical data, are of course considered in the economic analysis even though they are not shown in the Nation's Economic Budget accounts.

² Consideration of the dynamic relationship between output and the use of facilities and inventories is still in the exploratory stage. Work in this field is being carried on by Professor Leontief and by the Cowles Commission at the University of Chicago.

III. THE USE OF NATIONAL ECONOMIC ACCOUNTS FOR A POLICY OF ECONOMIC STABILIZATION

I could stop here; I have shown the purposes of policy, particularly fiscal policy, which, during the depression of the thirties and throughout the war and postwar period, stimulated the development of national economic accounting in the United States; and I have mentioned some of the current research work that is going on. Thus I have about covered the facts. I feel, however, that I have hardly touched upon the most important problems with which we are presently concerned. In this section of my paper I will deal with the use of national economic projections or national economic budgets for policies of economic stabilization. Much of what I have to say will refer to work of an exploratory nature.

1. Economic projections in the President's Economic Reports

As required by the Employment Act of 1946, each of the Economic Reports has presented a target figure for employment and production that should be reached in the ensuing year in order to satisfy the purposes of the Act. In the Reports of January 1948 and 1949 an attempt has also been made to go beyond the ensuing year and to project objectives into a longer-run future. These projections include the labor force, national income, production, consumption, investment, and a few other items. These objectives have been used as a broad background for the presentation of the President's long-range economic and social programs. President Truman, in his January 1949 Economic Report, referred to the usefulness of setting up such objectives in the following way:

In order to have a yardstick for appraising strength and weaknesses in our economy and the adequacy of Government programs, we need concrete objectives for economic growth, and particularly standards for a better balance between production and consumption, income and investment, and prices, profits, and wages which will be conducive to sustained economic progress. In the Annual Economic Review of the Council of Economic Advisers, transmitted herewith, there is a detailed treatment of our growth possibilities over the next few years.

The Council of Economic Advisers, in its Annual Economic

Review, which is incorporated in the Economic Report, states the purposes of these projections as follows:

The Employment Act of 1946 is based on the conviction that our economic system can sustain high and steady levels of employment and production. But such an outcome is not automatic. It will be achieved only if business, workers, farmers, and the Government are guided less by the records of the past than by the possibilities of the future. The Employment Act therefore calls for estimates of the levels of employment, production, and purchasing power needed to accomplish the purposes of the law. . . .

Such economic objectives are not to be confused with economic blueprints or plans used in regulated economies. They are conceived simply as bench marks for the orientation of private enterprise and public policies. Nor are they forecasts of what would be likely to happen without special effort. They depend upon success in accomplishing the objectives of the Employment Act. We present them as an attempt to integrate governmental and private thinking in a way that is essential for making rational decisions.

The Economic Report has not presented objectives of national accounts in all categories. It has only indicated for a number of the most significant areas of the economy the rate of growth that would be required and could be attained under conditions of balanced economic expansion and steady full employment. It estimates, for instance, that under such conditions of full and steady employment the Nation's Economic Budget total (gross national product) should increase by about 3 percent per year in real terms, assuming that the population will increase by about 1 percent. Mining, manufacturing, and agricultural production would increase at a somewhat lower rate, while services would increase somewhat more.

A considerable effort was made to determine the rate of investment which would correspond to the needed addition to plant and capacity. It was estimated that an investment of about 12 percent of a rising gross national product would provide the needed and sustainable expansion of industrial facilities. While, as compared with the prewar period, business investment, government operations and net foreign investment increased at a higher rate than consumption, the projections indicate that consumer expenditures over the next few years must increase by about 4 percent per year in order to reach a balance between expansion of consumer markets and the expansion of productive facilities.

In preparing these target estimates it was necessary to make certain assumptions with respect to component parts that are largely determined by foreign and domestic policy decisions. With regard to domestic policies, enactment of social programs which are now in the recommendation stage was assumed. Concerning defense expenditures, it was assumed that after some further increase relaxation of international tension would permit a moderate reduction. Alternative estimates under less optimistic assumptions have also been prepared.

The preparation of these objectives began with a tentative estimate of the rise in total production which would result from projected changes in the labor force, productivity and hours of work. Then followed estimates of consumer demand, investment needs, international and government transactions. Thus a hypothetical bill of final goods and services was obtained for future years from the demand side. This bill of finished goods was then translated into the estimates of manpower, materials and facilities needed to produce these goods and services. In this step the input-output technique was employed. This final step was used for a check of the original tentative estimates and served as a basis for revision by a process of subsequent approximations. It should be emphasized that the methods as well as the results are largely of an experimental character.¹

2. Economic objectives as a guide for economic adjustments

Stabilization policy requires, first of all, a recognition of the elements of instability. In a period of outright inflation or deflation and mass unemployment, it is not so difficult to discover the general nature of the changes in government operations that are necessary to restore stability or high activity in the economy. If the business accounts or consumer accounts show or threaten to show a substantial deflationary shrinkage or an inflationary expansion, the need for compensatory fiscal measures – possibly along with other nonfiscal policies – is clearly indicated. Economic stabilization policy, however, will not always be designed to deal with these extreme conditions.

· In an economy operating at a high level it is often not easy to

¹ A similar method was used first by the Bureau of Labor Statistics in 'Full Employment Patterns, 1950', op. cit. The estimates presented in the Economic Reports, however, go beyond the BLS method by a more detailed computation of investment needs. But we are still at the beginning in the development of adequate methods for the establishment of investment objectives.

determine whether changes within the economy represent desirable adjustments or trends towards instability. In order to identify movements toward adjustments and movements toward maladjustments, we need a concrete concept of those dynamic relationships among the component parts of the economy that are conducive to sustained and balanced expansion.

Some economists try to identify maladjustments by going back to former years and comparing economic relationships in previous periods with those prevailing at the present time. Such comparisons are certainly very useful, but it has been pointed out¹ that they do not offer the full solution to our problem. If we go back to former boom years, let us say 1929, we may use as a 'norm' the very proportions which made the economy so vulnerable to the subsequent depression. Relationships in periods of under-employment, on the other hand, are not applicable to periods of high employment. Confining studies to historical material may appear much less hazardous than embarking on projections into the future. While all projections into the future are hazardous indeed, using the past as a norm may be even more deceptive.² The study of objectives to which I am referring takes into consideration past experience as well as changes in technology, institutions, and attitudes. In the light of these objectives it becomes possible to analyze and evaluate recent trends.

The Economic Reports have observed, for instance, that during the inflationary postwar boom the nonconsumption items in the Nation's Economic Budget, particularly domestic business investment and net foreign investment, increased faster than consumer income and consumer demand and accounted for a larger proportion of national output than in any previous peacetime year for which records are available. That was probably a desirable development at a time when business had to replenish its inventories and modernize plant and equipment, and when aid to foreign countries was urgently needed. The Reports expressed concern, however, whether consumer income and expenditures would automatically increase when business investment and international trade assumed more 'normal' pat-

¹ See, for instance, *Report of the Joint Committee on the Economic Report*, 1st March 1949, Washington, D.C.

² This consideration must be kept in mind also when using the correlation method for projecting past trends into the future. The input-output technique reduces the reliance on past relationships.

terns. In anticipation that these difficulties would arise when the postwar boom began to taper off, policies were recommended that were designed to mitigate the contraction in private capital expansion and to support consumer demand by such measures as extension of social security programs, stimulation of housing, and preparation of public investment and developmental programs.

3. Economic objectives as a guide for formulating and appraising specific economic programs and business plans

Projections have been used not only for identifying economic maladjustments in general, but also as an aid in the appraisal of specific programs.

A start has been made in relating long-range economic programs, for instance for irrigation of land or power development, to long-range economic objectives. Objectives with respect to production of and demand for agricultural products, energy, transportation, etc., can serve as benchmarks for appraising the economic justification of specific government developmental programs. National economic accounts and economic models have been used also in an attempt to examine the economic effect of programs such as those for foreign economic aid and national defense. National economic accounting in a number of foreign countries has been greatly stimulated by requesting the countries cooperating in the United States foreign aid program to submit projections covering the period of the foreign aid program as a means of appraising how these countries propose to use foreign aid in their efforts to become self-supporting.

Some business groups have also attempted to examine their own investment needs in the light of the anticipated growth of the national economy as a whole. Here lies what I believe may be a very promising development. For purposes of economic stabilization, it is essential that the wild fluctuations in business investments be substantially reduced. Fluctuations could be diminished if business could be induced to orient its expansion programs more towards long-range objectives than to short-run fluctuations in the immediate economic outlook. If business has confidence that the government 'means business' in counter-acting depressions, it will be more ready to consider anticipated full employment markets as a basis for investment programs. Then it becomes essential that projections of national accounts

be made that indicate for the major lines of industry their prospective markets in a full employment economy of stabilized growth.

Economic projections can thereby aid in identifying for government and business orientation the general direction in which the major branches of the economy should move if balanced expansion is to be promoted by government and business decisions. Without such projections it would be difficult to determine whether a change in the rate of consumption and investment or government expenditures is in the direction of balance or imbalance.

Thus far, projections have been attempted only for broad categories and for a few very important materials. For an examination of investment needs for specific industries or for an appraisal for specific government programs, it would be necessary to obtain many more details than are now available. This applies particularly, but by no means exclusively, to the appraisal of economic feasibility of specific defense and mobilization programs. Details of needed manpower, specific raw materials, and productive facilities require a much finer breakdown by industries and products. The input-output technique, to which I referred above, can be used for that purpose. The computation of details was limited in the past by inadequate information on input-output relationships, and by the conventional computing devices. More detailed factual information may be obtained from sample surveys that are in the planning stage. In addition, the use of modern, high-speed computing machines opens up new possibilities.

IV. ECONOMIC OBJECTIVES AS A GUIDE FOR POLICY IN AN ECONOMY OF PREDOMINANTLY PRIVATE ENTERPRISE

1. *Projections of an 'imperative' and an 'orientation' character*

This conference is hearing reports about the policy use made of national accounting in countries with a high degree of government regulation and operation and in countries in which government regulation and operation are minimized. I can imagine that some are asking themselves whether there is, in a country of predominantly free enterprise such as the United States, a real place for the use of national economic accounts and national economic objectives.

As I have mentioned before in quoting a statement by the Economic Council, the economic projections or targets that have been used in the United States are of a different character from the plans used in countries with a higher degree of government operation or regulation. All these projections combine statements of what is desirable and estimates of what people are likely to buy under assumed conditions of income and employment.

The projections are to some extent of an 'imperative' character, and to some extent of an 'orientation' character.¹ Imperative statements reflect policy recommendations or policy decisions to be put into effect by appropriate government action. Orientation statements establish benchmarks which serve for guidance in the formulation of private decisions or government programs. They are not intended to be enforced by government action.

The economic plans for a fully regulated economy are predominantly of an imperative character. They decide the allocation of labor, materials, and facilities, and assume that these decisions will be implemented and enforced by a machinery of government controls. There are, however, certain elements in these plans of fully regulated economies which are estimates rather than decrees. Even in fully regulated economies, consumers are given some freedom in the use of their money, and workers in the choice of their jobs, and to that extent the plans reflect estimates of what consumers or workers are likely to do rather than what they are told to do.

The projections used in the United States are predominantly of the orientation character and only to a minor extent of the imperative character. It is true that the Employment Act makes it the responsibility of the government to develop economic programs designed to promote a stable and high level of employment and production. Thus the totals represent goals of production and employment opportunities required by full employment. If reasonably full employment should not be attained through the operation of the free forces of the market, supplementary economic policies designed to bring about that result must be recommended. To that extent there is an imperative aspect in the total.

¹ These terms are suggested by André Marchal in 'Le Plan Français', *Kyklos*, Vol. I, Fasc. 2, Bern, 1947; see also my article, 'The Government Budget and the Nation's Economic Budget', in *Openbare Financien*, January 1948 (Alphen aan den Rijn, N. Samson N.V.).

However, most details are mere estimates. We estimate what we think consumers will buy with a given income and a given income distribution. If consumers should change their habits and buy something different, the estimates must be revised rather than the objective enforced.

The 'orientation' character of the projections of national accounts can perhaps best be expressed by an analogy used by Leon Keyserling, Vice Chairman of the Council of Economic Advisers, in a recent speech.¹ He said that businessmen, workers and farmers are no more compelled to follow the 'prosperity budget' (to use his term) than to heed the weather report. And yet there is a reasonable assumption that the publication of the weather report, and of recognized economic objectives, has a considerable effect on the behavior of individuals or businessmen.

There are only certain elements in the details of the projection which are of the enforceable or imperative character. This is true in the area of government operations and also with respect to certain objectives which depend partly on private, partly on government operations. We are establishing, for instance, certain objectives for housing or medical care in accord with existing or proposed legislation, assuming that the government will take some action if necessary to accomplish the objective. The same is true with respect to other specific welfare objectives.

There are borderline areas as, for instance, in the case of nutrition. It is believed that government measures would be taken if nutrition should fall substantially below minimum standards. To a large extent, the projection can be regarded as reflecting the existing concepts of the general welfare and the extent to which the people expect their government to step in to aid in the realization of the demands for the general welfare.

It should hardly be necessary to add here as a footnote that the projections do not reflect the economist's ideas about what the general welfare is. The economist records what he finds is the people's concept of general welfare. In this he is guided by the actual behavior of consumers in various income brackets,

¹ 'Business and Government in the American System', Third Annual Harvard Business School Conference on Business and Government Relations, Washington, D.C., 9th April 1949. See also Mr. Keyserling's recurrent development on the theme of national budgets for target and policy purposes in three articles in the *New York Times Magazine*, New York, 8th June 1947, 13th June 1948, and 9th January 1949, entitled 'Must We Have Another Depression?', 'The Economic Test: Will We Act in Time?', and 'For a National Prosperity Budget'.

and by what the people expect their government to do as reflected in political platforms, pending legislation, and responsible policy recommendations. It is the job of the economist to sketch out a picture of the economy in terms of national accounts that is internally consistent, corresponds to the requirements of balanced economic growth, and approximates in the best possible way the desired content of the general welfare.

2. The use of economic objectives in the democratic process of policy formulation

Liberal doctrine taught that the economic welfare of the community flows from the individual decisions made by millions of businessmen, workers, farmers, and consumers. Through prices and costs, the market provides the guideposts for the individual decisions and integrates them into an interdependent whole. To insure that everybody plays his role according to the rules of the game is the important function assigned to the government.

In this approach the general welfare is not a goal toward which either the individual or the government is consciously working. Rather, it is a *result* of individual and government action. Similarly, as some people believe that health is best taken care of if nobody thinks or speaks of it, laissez-faire theory believes that the general welfare is best taken care of if nobody thinks of it as a direct guide to action. Economic accounts and economic objectives, therefore, have no place in the laissez-faire ideology.

We have learned that this ideology presented a useful hypothesis for analyzing an important aspect of our economic system, but that it cannot reflect the full reality of the modern economy. Large-scale business enterprises, labor unions, and farm groups are making decisions which are partly guided by the signposts of the market, but which also partly determine the market. The 'blind' forces of the market are increasingly modified by group action. In a democracy, group action depends largely on the approval of public opinion. Group action cannot run counter for long to public opinion without inviting restraining legislation. Therefore groups are forced to justify their action in terms of the public interest and the general welfare.

This appeal for public support, however, often pays no more than lip service to the general welfare. The general welfare at present is just as abstract a concept as 'virtue'. It must be filled

with concrete meaning before it can be used as an actual yardstick for judging beneficial or harmful aspects of group behavior. In an age of organized group power, free institutions cannot survive unless groups recognize that their own self-interest will be endorsed by the community only to the extent that it does not conflict with, but rather promotes, national economic objectives.

The use of national economic objectives for appraising not only public but also private action will probably require a long evolutionary process. But in discussions of wage policy, of the farm price support program, and of investment policies, we already find that the parties debating a proposal are beginning to ask themselves how a particular measure affects the other groups in the population, and how it gears into national income and employment opportunities as a whole.

It follows that a democratic policy of free institutions requires that substance be given to the concept of the general welfare. National economic projections may become a focal point for democratic debate of what is required by the general welfare. The computation of these economic objectives to a large extent is simply a technical job of translating into figures the requirements of the general welfare on which everybody will agree. There are, however, and there always will be, areas of controversy with respect to the objectives, and particularly concerning the priority of objectives on which public opinion has not yet crystallized. A decision on these controversial issues should be hammered out in lively democratic debate. The estimator reflects but cannot make the decisions of these controversies.

Once estimates reflect the best concrete and quantitative interpretation of the general welfare, economic groups can present their case both in terms of their own self-interest and in terms of the recognized economic objectives. Thus they are forced to reconcile the appeal to their own members with the appeal to the general public. I believe that an economy of free institutions can survive in a period of powerful organized interests only if these groups accept the rules of the game, and also feel obliged to consider their group actions in terms of their contribution to the national economic objectives.

The powerful disintegrating forces which we have in a society of antagonistic group interests must be offset by an integrating force. There is an integrating force which has great vitality,

namely, the recognition that the purposes of society are above group interests. In technical language, we would say that there is in each economic situation a relationship among prices and wages, consumption and business investment, private action and government programs which is most nearly consistent with the requirements of the general welfare. The recognition of this essential interdependence of the groups in the whole national economy is reflected in the growing interest in these statistical efforts which we call national economic accounts. This interest in national economic accounts may be regarded as a promising symptom of a growing feeling of responsibility for the effects of group action, private and public, on the national economy as a whole. As the late Budget Director, Harold D. Smith, said: 'Such thinking in terms of the Nation's budget would promote more community thinking and more national and social responsibility.'¹

Perhaps it may appear paradoxical to regard these national economic objectives as an essential element in the democratic struggle for economic stability, while statements of national blueprints which on the surface appear similar to those of economic objectives are an essential tool of totalitarian economic management. If democratic nations should refuse to use national economic accounts because they appear so similar to totalitarian blueprints, then they would make the mistake which the Soviets made during the early period of 'war-communism' when they rejected bookkeeping in monetary terms for socialized industries as a 'capitalistic' method of management.

National accounting statements are neither totalitarian nor democratic. They can be used in either system. They have, however, a different significance and different use in totally planned economies, in economies with partial controls, or in predominantly uncontrolled economic systems. I have tried to point out the vital role this approach may play in a country that is striving towards economic growth and stability with a minimum of government regulation. But we are at best at the beginning of a promising development.

¹ Harold D. Smith, *The Management of Your Government*, McGraw-Hill, New York, 1945, p. 178.

APPENDIX

by Mary W. Smelker

THE NATION'S ECONOMIC BUDGET

The Nation's Economic Budget is designed to give a synoptic picture of the economy. It shows the magnitudes of income and expenditure of major economic groups, net additions and absorption of saving by these groups, and the gross national income and product. To achieve so much in a single table may be characterized as a *tour de force*, and as with most accomplishments in the latter category some violence is done, in this case to various statistical niceties. Statistics for the Nation's Economic Budget are drawn from various sources and are not always entirely comparable. Statistics relating to the private sectors of the economy are taken from the 'National income and product' series of the Department of Commerce,¹ while the government account is based mainly on 'Cash receipts from the public' and 'Cash payments to the public' as compiled by the Bureau of the Budget.²

The alternative to the procedure of combining these two sets of estimates would have been either to use the national income concept of government transactions, which excludes various classes of government receipts and payments, or to place all the accounts on a cash basis. The first alternative was rejected because it was thought preferable to utilize official Budget Bureau estimates of the Federal budget, and because a more restricted set of figures might appear to minimize the role of government fiscal operations. On the other hand, we are not yet able to set up a complete current set of cash accounts. Even if this could be done, however, the familiarity of the national income accounts, and the desirability of reconciling with the total output of goods and services, would be cogent reasons for keeping the Nation's Economic Budget on the present basis.

The gross national product or income includes only certain types of receipts or payments, namely, those associated with current production. Other types of receipts or payments represent transfers of claims using the term in the broadest sense. For example, the govern-

¹ Estimates of national income and product and related series are published for the years 1942 to date in the *Survey of Current Business*, U.S. Department of Commerce, July 1949 and February 1950.

² Federal cash receipts from the public and payments to the public represent a consolidation of the United States budget with the capital government trust and corporation accounts. All intragovernmental or noncash transactions have been eliminated. A detailed explanation of this consolidation may be found in the Budget of the United States Government for the fiscal year 1950, p. 1375. A summary of the derivation of cash receipts and payments from budgetary receipts and expenditures for calendar year 1948 was presented in the Annual Review of the Council of Economic Advisers, January 1949, pp. 89 and 90.

ment transfers purchasing power to the recipients of veterans' pensions. Such payments have an important bearing both on government outlays and on the spending and saving of individuals. It was necessary, therefore, in the Nation's Economic Budget to include the main flows of transfer payments in addition to the flows associated with current production. To indicate the distinction, the former are in italics and the latter in roman type. Obviously, only the latter may be totaled to arrive at the gross national product.

Referring to Table 1, government expenditures for goods and services are shown in line 15, and all other government cash payments in line 16 (*italics*). The receipts of transfers to individuals and government interest are shown in line 2, and included in consumer disposable income. Government cash loans and investments to 'the rest of the world' have also been entered as a receipt in the international account (line 9). While these payments obviously increase the purchasing power of the 'rest of the world', the term 'transfer' may convey the impression that unilateral transfers are included. For various reasons, indicated later, unilateral transfers are considered as a direct goods and service expenditure of either consumers or government and do not appear either as a receipt or investment item in the international account.

In order to show the essential equivalence of income derived from current production with gross national product or expenditure, some adjustments must be made. In U.S. statistics, 'subsidies, less the surplus on current account of government enterprises' is included in national income, but not in the gross national product. A deduction from income is therefore necessary. This adjustment, plus the statistical discrepancy (i.e. the difference between largely independent estimates of income and product) is shown in line 19. Remaining government payments not included anywhere in receipts (e.g. net loans to business, purchase of existing assets, etc.¹) were netted against adjustments on the receipts side of the account, line 17, in order to balance out savings.

Some additional adjustments are required in receipts because of a lack of comparability in the method of estimating government and private receipts. Discrepancies arise from the fact that in calculating consumers' disposable income, for example, or corporate income after taxes, taxes were reckoned on a liability basis whereas actual collections by the government enter into the government account. Government tax receipts lag behind liabilities; in the case of corporations the lag is as much as a year. The identity of saving with invest-

¹ However, one very large category of loans, crop-secured loans under the price support program, is included in government expenditures for goods and services. The security is included as capital formation of the government, and the loan included in farm income at the time it is made.

TABLE 1

The Nation's Economic Budget, 1948-49
(Billions of dollars, annual rates, seasonally adjusted)

Economic Group	1948, first half			1948, second half			1949, first half ¹		
	Re- ceipts	Expen- ditures	Excess of receipts (+) or deficit (-)	Re- ceipts	Expen- ditures	Excess of receipts (+) or deficit (-)	Re- ceipts	Expen- ditures	Excess of receipts (+) or deficit (-)
CONSUMERS									
1. Disposable income relating to current production	170.5			181.0			178.5		
2. Government transfers and net interest payments	15.3			14.7			15.9		
3. Disposable personal income	185.8			195.7			194.6		
4. Expenditures for goods and services		177.0			180.6			178.8	
5. Personal savings (-)			8.8			-15.2			+15.6
BUSINESS									
6. Retained business receipts from current production	25.2			28.7			28.3		
7. Gross private domestic investment		42.4			47.6			38.5	
8. Excess of receipts (+) or investment (-)			-17.2			-18.9			-10.2
INTERNATIONAL									
9. Government loan transfers abroad	1.7			0.9			0.9		
10. Net foreign investment		3.4			0.4			1.2	
11. Excess of receipts (+) or investment (-)			-1.6			-0.4			-0.3
GOVERNMENT (Federal, State, and local)									
12. Tax payments or liabilities	60.2			60.2			56.0		
13. Adjustment to cash basis	1.9			-2.3			1.6		

14. Cash receipts from the public	62.1			57.9		57.6	
15. Purchases of goods and services	33.7			39.8		43.2	
16. Government transfers	16.8			15.1		16.7	
17. Cash payments to the public	50.5			54.8		59.9	
18. Excess of receipts (---) or payments (-)			11.6		-3.1		-2.3
ADJUSTMENTS							
19. For receipts relating to gross national product	0.8	0.8	-1.4	-1.4	-1.2	-1.2	
20. Other adjustments	2.4	2.4	1.6	1.6	1.6	1.6	
21. Gross national product	256.5	256.5	0	268.4	268.4	0	261.6
							261.6
							0

¹ Estimates based on incomplete data.

Note: Items relating to current production of goods and services are shown in regular type. Transfer payments and receipts and subtotals including them are in italics; these items are not included in the gross national product.

Detail will not necessarily add to totals because of rounding

Explanatory notes:

Lines 1-5: See Table 2, Consumer Account.

Lines 6-8: See Table 3, Business Account.

Lines 9-11: See Table 4, International Account.

Lines 12-13: See Table 5, Government Account.

Line 19: Includes the statistical discrepancy and the current surplus of government enterprises less government subsidies. The statistical discrepancy represents the difference between two independent estimates of gross national product, one arrived at by estimating the income received from current output and one by estimating expenditures for this output. The adjustment for statistical discrepancy brings the estimate on the receipts side into agreement with that on the expenditure side of the accounts.

Line 20: An adjustment is necessary to balance the sum of the transfers on the receipts side with that on the payments side because of the fact that somewhat different bases for measurement have been used in estimating various components of receipts and payments. Most of the discrepancies reduce to a difference in timing between the recording of a receipt and a payment. A correction must be made for the difference between the time a tax liability is incurred or payments are made and the time a receipt is recorded by the government. Payment is sometimes made for goods produced in a previous period; interest payments on a cash basis differ from the accrued interest shown under consumer receipts, etc.

Sources: This table is based on the national income and product statistics of the Department of Commerce, with revised figures for net foreign investment and construction, and on Federal cash receipts from and payments to the public estimated by the Bureau of the Budget.

ment is thus destroyed by the varying basis of tax estimates, unless an adjusting item is introduced.

The magnitude and nature of the adjustments required to go from the income and product basis of accounting to cash receipts and payments is shown in Table 5, the government account. Some remarks on this account follow the discussion of the composition of the private sectors of the economy below.

In considering the third column, additions to and absorption of saving, it should be noticed that the term 'saving' is used in a sense which is not very rigidly defined. Except for consumer saving, which conforms to usual definitions, it more nearly approximates 'additions to' or 'withdrawals from' the income stream. This is especially true

TABLE 2

Consumer Account, 1948-49

(Billions of dollars, annual rates, seasonally adjusted)

Receipts or Expenditures	1948		1949 First half ¹
	First half	Second half	
Receipts:			
Personal income arising from current production of goods and services:			
Wage and salary receipts and other labor income	131.3	138.9	136.9
Proprietors' and rental income	49.2	49.8	47.2
Dividends and private interest	11.2	12.1	12.6
Business transfer payments	0.6	0.6	0.6
Total	192.3	201.4	197.3
Plus:			
Net interest paid by government	4.4	4.5	4.6
Other government transfer payments	10.9	10.2	11.3
Equals: Total personal income	207.7	216.0	213.1
Less: Personal tax and nontax payments	22.0	20.3	18.8
Equals: Disposable personal income	185.8	195.7	194.4
Expenditures:			
Durable goods	23.2	23.8	23.4
Nondurable goods	101.8	102.6	99.7
Services	51.9	54.2	55.6
Total expenditures	177.0	180.6	178.8
Personal saving	8.8	15.2	15.6

¹ Estimates based on incomplete data.

Note: Detail will not necessarily add to totals because of rounding.

in the case of the government account which is strictly on a cash basis and contains capital items.

Consumer account

Table 2 shows personal income and its principal components, personal taxes, and a breakdown of expenditures by important classifications. Consumer income includes the net profits of unincorporated businesses after adjustment for inventory valuation and farm proprietors' income. Expenditures for construction of dwellings are considered as a business investment, but other durable goods purchases are included in consumption expenditure. Personal saving is a residual figure derived by deducting consumption expenditures from disposable income.

TABLE 3

Business Account, 1948-49

(Billions of dollars, annual rates, seasonally adjusted)

Receipts or Investment	1948		1949 First half
	First half	Second half	
Receipts:			
Corporate profits before tax	34.0	35.6	27.9
Less:			
Corporate profits tax liabilities	13.2	14.0	11.0
Dividends	7.6	8.1	8.4
Equals: Corporate undivided profits	13.2	13.5	8.4
Plus:			
Capital consumption allowances	15.2	16.2	16.4
Corporate inventory valuation adjustment ¹	-3.2	-1.0	3.4
Equals: Retained earnings and additions to reserves	25.2	28.7	28.3
Private domestic gross investment:			
Construction	17.5	18.3	16.6
Producers' durable equipment	20.2	21.1	20.8
Change in inventories	4.7	8.2	1.1
Nonfarm only	4.0	6.2	0.1
Total gross private domestic investment	42.4	47.6	38.5
Excess of receipts (+) or investment ()	-17.2	-18.9	-10.2

Note: Detail will not necessarily add to totals because of rounding.

Source: Based on estimates of the Department of Commerce.

¹ This adjustment is required because corporate income is reckoned inclusive of changes in the book value of inventory, as is customary in business accounting, whereas only the value of the real change in inventories is counted as current output in the gross national product.

Business account

Business income includes undistributed corporate profits after adjustment for inventory valuation, plus capital consumption allowances on corporate and noncorporate capital, including residences. Gross investment includes noncorporate and corporate investment, including residential construction.¹

Profits are included after inventory valuation adjustment in business receipts in accordance with the national income and product basis of accounting. The gross national output or product for any period includes only the real change in inventories (net change in physical volume valued at current prices) rather than the change in the book value. An adjustment is therefore made in proprietors' and in corporate net income to exclude income arising from revaluation of existing inventory. (In Table 2, proprietors' income is shown after inventory valuation adjustment.)

International account

In the international account, U.S. Government net cash long-term loans abroad and cash subscriptions to the International Monetary Fund or International Bank for Reconstruction and Development are included as a receipt for the 'rest of the world'. Investment consists of the net balance of payments on current account (or net foreign investment), which excludes that part of the export surplus financed by U.S. gifts, public or private (net). Thus exports financed under ECA or other unilateral aid programs or by private remittances are not represented in the international account. They are included as a direct public or consumer expenditure for goods and services. The excess of receipts or investment (line 11, Table 1) thus shows that part of the surplus of exports of goods and services not financed through public or private gifts or by government cash loans or subscriptions.

From many points of view this treatment is unsatisfactory. It would perhaps have been preferable, in view of the fact that there is more interest in the volume of real exports than in the balance of current payments, to show the entire surplus of exports of goods and services as investment, and the entire means of finance made available by the

¹ In this type of classification the fiction is used that a farmer or businessman who invests his own money borrows money from himself in his capacity as a consumer. The internal consistency of the accounts would be better preserved by substituting for the present consumer account a personal account which on the receipts side would include net personal income plus capital consumption allowances for farms and unincorporated businesses, and on the expenditure side consumer expenditures and personal investment. A corporation account would then be substituted for the present business account. However, this would divide investment into two components artificially, blurring the line between consumer and business-type expenditure.

U.S. Government as a receipt.¹ Net foreign investment has not proved a very significant economic variable in recent periods, since it moves fairly erratically, depending on how much government aid is on a loan rather than a grants basis – a decision sometimes made *ex post facto*.

Similar distortions have been introduced in the government product figures in order to compensate for the fact that receipts from the sale of surplus property are included in net foreign investment, although production took place in a previous period and was recorded in the gross national product at that time. In order to avoid overstating current gross national product, a compensating deduction is made in current government expenditures for goods and services at the time a receipt from surplus sales is recorded in the balance of payments. (See footnote 5, Table 5.)

Table 4 shows the derivation of net foreign investment from the export surplus; the estimates of net unilateral transfers are from official balance of payment statistics published by the Department of Commerce; loans and subscriptions are on a Daily Treasury Statement or cash payments basis. Thus 'Payments to the International Monetary Fund and International Bank' represent the cash payment to these organizations by the U.S. on subscriptions, and not disbursements by these organizations.

Tables 7 and 8, Federal Cash Payments by Function and by Type of Recipient, give a more comprehensive picture of the expenditures of the U.S. Government relating to international affairs broadly conceived. Table 7 breaks down all Federal cash payments according to major governmental function. The 'International affairs and finance' function includes cash disbursements for foreign aid, including grants whether rendered in cash or in goods,² and long and short-term loans; expenses connected with the administration of such programs; subscriptions to the International Bank and the International Monetary Fund; membership in other international organizations such as the U.N., FAO, UNESCO, WHO, IRO, State Department expenditures, etc. It is to be noted, however, that substantial amounts of credit not involving current outlays of cash, e.g. surplus property and lend-lease pipeline credits, have been extended to foreign countries.

The 'international' category in Table 8, 'Cash Payments by Type

¹ In this case, net U.S. grants and private gifts would have to be deducted from government expenditures for goods and services and consumer expenditures respectively.

² Unilateral grants included in the international affairs functions differ from those in the international account table because of the fact that the latter are net and are based partly on vouchers and partly on physical shipments, while all items in the cash payment table are on a Daily Treasury Statement basis (partly checks issued, partly checks paid).

of Recipient', differs in several respects from the international 'function', Table 7. Administrative expenses of foreign aid programs are not included in the recipient classification, since such expenses largely fall under wages and salaries of Federal personnel, while a small amount of overseas procurement not in the 'function' has been included in the recipient group. Also, a somewhat arbitrary decision was made to exclude short-term credit from the international recipient classification.

TABLE 4
International Account, 1948-49
(Billions of dollars, annual rates)

Receipts or Investment	1948		1949 First half
	First half	Second half	
Receipts:			
Net long-term loans ¹	1.1	0.8	0.8
Payments to the International Monetary Fund and International Bank ²	0.6	0.1	0.1
Total government cash loans and invest- ments abroad	1.7	0.9	0.9
Investments:			
Excess of exports of goods and services over imports	7.2	5.4	7.3
Less:			
Net unilateral transfers:			
Government ³	3.2	4.3	5.5
Private	0.7	0.6	0.6
Equals: Net foreign investment	3.3	0.5	1.2
Excess of receipts (+) or investment: (-)	-1.6	+0.4	-0.3

Estimates based on incomplete data.

¹ Includes only cash withdrawals under loan agreements. Does not include noncash transactions such as lend-lease and surplus property credits.

² Cash payments on subscriptions.

³ Does not agree with unilateral aid included in Table 8, which is on a Daily Treasury Statement basis.

Government account

The government account reconciles cash receipts from and payments to the public with the government revenue and expenditure estimates which have been incorporated in the national income and product accounts. It also provides a breakdown of government

receipts and expenditures into Federal and State and local components.

In the cash payment series, the receipts of the government corporations have been offset against the expenditures and only the net expenditure has been included. The same treatment is accorded the Post Office because of the quasi-commercial character of its operations.¹ Ideally, government corporations expenditures should be broken down into governmental and commercial and only the latter included on a net basis. So far, this has not been feasible, due to the complexity of the operations of the corporations.

Grants-in-aid to State and local governments are included as a cash payment of the Federal Government and are not counted as either a cash receipt or payment of the States and localities.

The major revenue sources of the Federal Government are shown in Table 6, Cash Receipts from the Public. Expenditures according to major governmental function are shown in Table 7, Cash Payments to the Public. In Table 8, Federal expenditures have been classified by recipient, whether individuals, businesses, foreign countries, or States and localities. In most cases the term 'recipient' means the initial recipient. However, this classification has not been followed in the case of a considerable part of the expenditure for international aid. All aid expenditures have here been included in the 'international' category, even though in many cases purchases of commodities for shipment were made directly from business by the U.S. Government. The same procedure has been followed in the case of State and local aid programs, although the amounts of direct procurement by the Federal Government for these programs are not considerable. Similarly, wages and salaries do not include those of postal employees, the entire deficit having been included as a subsidy to business.

¹ The national income and product accounts include the purchases of government enterprises (in general the Post Office and government corporations) on capital account, their net interest payments and their operating surplus or deficit. See Table III, Consolidated Government Receipts and Expenditures Accounts in the *Survey of Current Business*, U.S. Department of Commerce, July 1949.

TABLE 5

Government Account (Federal, State, and Local), 1948-49

(Billions of dollars, annual rates, seasonally adjusted)

Receipt or Expenditure	1948		1949 First half
	First half	Second half	
Receipts:			
Tax and nontax payments or liabilities: ¹			
Federal	45.0	44.3	39.4
State and local	15.2	15.9	16.6
Total	60.2	60.2	56.0
Adjustment to cash basis:			
Noncash receipts ²	- 1.1	- 1.1	1.7
Excess of cash receipts over tax liabilities or payments ³	3.0	1.2	3.3
Cash receipts from the public	62.1	57.9	57.6
Expenditures:			
Purchases of goods and services:			
Federal ⁴	18.7	23.0	25.7
State and local	15.0	16.7	17.4
Total	33.7	39.7	43.2
Other government payments:			
Transfers to individuals	10.9	10.2	11.3
Cash interest payments to the public ⁵	4.4	4.4	4.2
Loans to foreign governments and subscrip- tions to the International Bank and Inter- national Monetary Fund ⁶	1.7	0.9	0.9
All other ⁷	- 0.2	- 0.4	0.4
Total	16.8	15.1	16.8
Cash payments to the public	50.5	54.8	59.9
Cash surplus (+) or deficit (-)	11.6	3.1	2.3
ADDENDUM			
Federal:			
Cash receipts	47.4	42.6	41.7
Cash payments	35.1	38.7	42.7
Surplus (+) or deficit (-)	12.3	3.9	- 1.0
State and local:			
Cash receipts	14.7	15.3	15.9
Cash payments	15.4	16.1	17.2
Surplus (+) or deficit (-)	- 0.7	- 0.8	- 1.3

Note: Detail will not necessarily add to totals because of rounding.

TABLE 6

Federal Cash Receipts from the Public other than Borrowing
Calendar Years 1948 and 1949

(Billions of dollars, annual rates, seasonally adjusted)

Cash Receipts	1948		1949 First half
	First half	Second half	
Federal cash receipts from the public:			
Direct taxes on individuals ¹	22.8	19.0	18.7
Direct taxes on corporations	11.1	11.1	12.0
Employment taxes	2.4	2.5	2.5
Excises and customs	7.8	8.0	7.9
Surplus property receipts	1.8	0.5	0.7
Deposits by States, unemployment insurance	0.9	1.1	0.9
Veterans' life insurance premiums	0.4	0.4	0.4
Other	2.4	2.1	1.4
Less: Refunds of receipts	2.2	2.2	--2.8
Total Federal cash receipts from the public	47.4	42.6	41.7

Note: Detail will not necessarily add totals because of rounding.

¹ Includes personal income taxes and estate and gift taxes.

Footnotes to Table 5

¹ Personal and indirect business tax payments and corporation tax liabilities. Includes contributions for social insurance.

² Consists of deductions from government employees' salaries for retirement funds, and government contributions to retirement funds, national service life and government life insurance funds.

³ Includes excess of corporation tax receipts over liabilities and excess of personal tax receipts over payments. Cash receipts also include some items of miscellaneous internal revenue not included in tax and nontax payments, such as receipts from sales of surplus property.

⁴ Sales of surplus property of 1 billion dollars in the first, and 300 million dollars in the second half of 1948, and 200 million dollars in the first half of 1949 have been deducted from gross expenditures.

⁵ Does not agree with net interest paid by government (Table 2) which is on an accrual basis.

⁶ See Table 4, International Account.

⁷ Includes all other cash payments less noncash payments for goods and services. Other cash payments include net payments by government corporations (except capital formation), net prepayments, and the excess of checks paid over checks issued. Noncash purchases of goods and services include deductions from government employees' salaries for retirement funds and the government contribution to such funds.

TABLE 7

*Federal Cash Payments to the Public by Function
Calendar Years 1948 and 1949*

(Billions of dollars, annual rates, seasonally adjusted)

Function	1948		1949 First half
	First half	Second half	
National defense	11.1	11.2	12.9
International affairs and finance	5.2	6.1	7.3
Veterans' services and benefits	7.0	6.9	7.2
Social welfare, health, and security	2.2	2.5	2.5
Agriculture and agricultural resources	0.4	2.3	2.8
Interest on the public debt	3.9	3.8	4.0
Other	5.3	6.6	6.6
Deduction from Federal employees' salaries for retirement	--0.2	--0.3	--0.3
Clearing account for outstanding checks and telegraphic reports	! 0.2	- 0.5	--0.2
Total cash payments to the public	35.1	38.7	42.7

Note: Detail will not necessarily add to totals because of rounding.

Footnotes to Table 8

¹ Excluding terminal leave pay.

² Civilian wages and salaries exclude payroll deductions for Federal employees' retirement, and Post Office wages and salaries.

³ Also includes cash terminal leave pay to enlisted personnel, cashing of terminal leave bonds, mustering-out pay, and payment of government and national service life insurance benefits to veterans' beneficiaries.

⁴ Repayments exceed loans.

⁵ Includes interest payments on the Federal debt, and a small amount of interest on tax refunds. Interest figures in this table are not comparable with those in Table 2. Interest in that table includes payments to unincorporated business as well as to individuals and is adjusted for certain interaccount transfers.

⁶ Consists of cash trust account payments other than payment of social insurance benefits and government and national service life insurance. Such items as repayments of personal funds of military and civilian personnel located overseas which were deposited in trust accounts, and payments of earnings to prisoners of war, are included.

⁷ Less than 50 million dollars.

⁸ In cash payments to the public, the Post Office is included on a net basis. The whole deficit is shown here as a subsidy, and is included in the business category because the deficit arises primarily out of the subsidy to mail other than first class.

⁹ Equals the excess of Federal cash payments to the public over the sum of all other payments shown in this table. Includes mainly government purchases of goods and services from business.

¹⁰ Estimates are on a Daily Treasury Statement basis, which does not necessarily agree with U.S. Government aid as shown in balance of trade statistics.

¹¹ Includes other government expenditures abroad and payments for membership in international organizations other than listed above.

TABLE 8
Federal Cash Payments to the Public by Type of Recipient
Calendar Years 1947 and 1948
 (Billions of dollars)

Payments to	Seasonally adjusted annual rates	
	1947	1948
Individuals:		
Salaries and wages of Federal personnel:		
Military ¹	3.0	2.7
Civilian ²	4.6	4.6
Allowances to dependants of military personnel ³	0.3	0.3
Readjustment benefits, pensions, and other payments to veterans	7.0	5.8
Social insurance beneficiaries	1.8	1.9
Loans to home owners ⁴	-0.2	-0.1
Interest ⁵	0.8	1.1
Other ⁶	0.4	0.7
Total	17.7	17.0
Business and farmers:		
Subsidies and other payments to farmers	0.8	1.1
Loans and investments	0.1	(?)
Interest ⁷	2.9	2.8
Subsidy arising from postal deficit ⁸	0.2	0.5
Home-mortgage purchases from financial institutions	0.1	0.2
Other ⁹	7.4	7.7
Total	11.5	12.3
International:		
Loans and grants, European Recovery Program	—	1.8
Other loans to foreign governments (net withdrawals)	3.6	0.5
Other grants ¹⁰	1.9	2.8
Payments to the International Monetary Fund and International Bank	1.8	0.4
Other ¹¹	0.1	0.6
Total	7.4	6.0
State and local governments and public agencies:		
Grants-in-aid	1.6	1.8
Interest	0.1	0.1
Loans	(?)	(?)
Total	1.8	1.9
Clearing account for outstanding checks and telegraphic reports	+0.2	-0.2
Total Federal cash payments to the public	38.6	37.0

For notes see p. 110 opposite.

LES EXPÉRIENCES RÉCENTES DE L'EMPLOI DE LA COMPTABILITÉ SOCIALE PAR LA POLITIQUE ÉCONOMIQUE EN FRANCE

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INTRODUCTION

DANS le domaine des idées, la comptabilité sociale peut s'enorgueillir en France d'une tradition qui remonte au moins au Tableau Économique de Quesnay (1758) et à l'ouvrage inachevé de Lavoisier 'De la Richesse Territoriale du Royaume en France' (1791). Ces véritables promoteurs de l'analyse économique quantitative fondée sur un système lié de grandeurs globales interdépendantes ont aperçu immédiatement le parti que pouvait en tirer la politique économique. Quesnay demandait par exemple 'que l'impôt ne soit pas destructif ou disproportionné à la masse du revenu de la Nation; que son augmentation suive l'accroissement du revenu'.¹ Les conceptions de Lavoisier allaient beaucoup plus loin:

Il y aurait un moyen de porter dans ce travail un beaucoup plus grand degré de clarté; il consisterait à former, pour une année commune, le compte ou le bilan général de toutes les provinces du royaume . . .

. . . L'Agriculture du royaume serait considérée comme formant le domaine d'un seul individu. . . . Un chapitre semblable serait ouvert pour toutes les productions du royaume. A ce compte général en nature serait joint un compte général en argent, qui jouerait avec tous les autres. . . . Rien n'empêcherait qu'après avoir essayé de donner une idée générale de la comptabilité de l'agriculture pour une année commune, on essayât de former le compte particulier de chaque année. On verrait alors quelle est l'influence de l'abondance des récoltes sur la richesse nationale, *ce que le territoire peut supporter d'impôt dans une bonne année, le soulagement qu'il est nécessaire d'accorder dans une mauvaise; on connaîtrait ce qu'on peut exporter sans risques* etc. . . . Ces comptes généraux qu'on pourrait étendre à la population et à la balance du commerce formeraient *un véritable thermomètre de la prospérité publique; et chaque législature verrait d'un coup d'oeil, dans des*

¹ Cf. François Sellier: 'Un précurseur sans disciples: Lavoisier', dans *Économie Appliquée*, I.S.E.A., Octobre-Décembre 1948.

états sommaires, le bien comme le mal qui auraient résulté des opérations faites par les législatures précédentes. Il ne tiendra qu'aux constituants de fonder pour l'avenir un *établissement public* où viendront se confondre les résultats de la balance de l'agriculture, du commerce et de la population; où la situation du royaume, sa richesse en hommes, en productions, en industrie, en capitaux accumulés, viendront se peindre comme dans un tableau raccourci. . . .¹

Cependant, *dans le domaine des faits*, les idées fécondes de Quesnay et de Lavoisier ont dû attendre plus de 150 ans pour donner lieu à de premières réalisations, bien imparfaites d'ailleurs comme nous le verrons dans la suite. Les très nombreuses évaluations du revenu national français qui ont été tentées au XIXe et au début du XXe siècles n'ont eu ni l'envergure, ni la précision, ni le fondement scientifique suffisants pour servir de base à une politique économique rationnelle. Et, d'autre part, les gouvernements semblaient se désintéresser complètement, ou presque, des avantages qu'ils auraient pu tirer d'un instrument d'orientation et de contrôle tel que la comptabilité sociale. Il ne nous appartient pas ici de rechercher les causes précises de cet oubli. D'une façon très générale, on peut dire que le libéralisme économique et les doctrines de neutralité du budget, de l'impôt et du rôle économique de l'État, ont détourné l'attention des économistes et des hommes d'action de tout essai d'une politique quantitative, comme si celle-ci était nécessairement liée au concept d'un interventionnisme contraire à l'esprit de l'époque.

Quoi qu'il en soit, ce n'est qu'après la seconde guerre mondiale que la doctrine française de la comptabilité sociale – renouvelée par André L. A. Vincent ('L'Organisation dans l'entreprise et dans la nation' – Nancy, 1941) et fécondée par le contact avec les réalisations étrangères qui ont fait l'objet d'une analyse approfondie et constructive de la part de François Perroux ('Le Revenu National', 1946)² – cherche sa voie vers des applications pratiques dans le domaine de la politique économique.

Les documents chiffrés de comptabilité sociale³ publiés en

¹ Cité d'après François Sellier, op. cit., pp. 655 et suiv. – C'est nous qui soulignons les passages les plus caractéristiques.

² Nous n'avons pas l'intention de présenter ici une bibliographie complète des travaux français. Nous nous limitons donc à ces deux noms de pionniers.

³ La comptabilité sociale est prise ici au sens étroit d'ensembles chiffrés de grandeurs interdépendantes portant sur le champ entier de l'activité économique nationale. Cette définition exclut les statistiques partielles portant sur des secteurs ou événements particuliers.

France depuis 1945 sont, dans l'ordre chronologique, les suivants:

- 1) *Institut de Conjoncture 'Point Économique N° 5, VIe Partie: 'Richesse et Revenu de la France' – fin décembre 1945.*¹
- 2) *Commissariat Général du Plan: 'Données statistiques sur la situation de la France au début de 1946, rassemblées en vue des négociations de Washington' – mars 1946.*
- 3) *Commissariat Général du Plan: 'Documents relatifs à la Première Session du Conseil du Plan' – 16–19 mars 1946.*²
- 4) *Commissariat Général du Plan: 'Estimation du Revenu National Français' – 1947.*³
- 5) *Commission du Bilan National: 'Perspectives des Ressources et des Besoins de l'Économie Française au cours du premier semestre et de l'année 1948' – décembre 1947.*⁴
- 6) *Commission du Bilan National: 'Ressources et Besoins de l'Économie Française en 1948. Résultats du premier semestre et perspectives du second' – août 1948.*⁵

Il n'est pas douteux que tous ces documents ont exercé à des degrés très divers une certaine influence *indirecte* – qu'il est d'ailleurs impossible de préciser – sur la formation de la politique économique en France et plus particulièrement sur la politique à *long terme* du Commissariat Général du Plan. Les deux derniers rapports de la Commission du Bilan occupent cependant de ce point de vue une place à part. Établis à la demande expresse du Gouvernement, ils ont effectivement servi de fondement à des décisions concrètes et repérables dans le domaine de la lutte contre l'inflation. C'est donc cette expérience précise et bien délimitée qui fera l'objet principal de notre exposé.

Afin de se faire une idée aussi objective que possible de la vraie signification de cette expérience, l'Institut de Science Économique Appliquée a cru utile de recueillir préalablement les opinions de ceux qui ont, directement ou indirectement, soit participé à la formation de la politique économique française

¹ Travaux dirigés par M. Marc de l'Institut National de Statistiques et d'Études Économiques. Conceptions en matière de comptabilité sociale fournies par M. A. L. Vincent.

² Statistiques élaborées par MM. Dumontier, Froment et Gavanier.

³ Dumontier, Froment, Gavanier.

⁴ Rapporteur P. Uri. La mise en œuvre des résultats statistiques a été effectuée par MM. Uri, Dumontier, Coutin, Delcourt, Froment, Gavanier.

⁵ Rapporteur P. Uri. La mise en œuvre des résultats statistiques: Uri, Dumontier, Coutin, Delcourt, Froment, Gavanier.

(ministres, directeurs de ministères, députés, membres du Conseil Économique, directeurs de la Banque de France, etc.), soit dirigé les travaux d'établissement de la comptabilité sociale (économistes et statisticiens du Commissariat Général du Plan), soit encore, à des titres divers, eu à en apprécier la signification économique (professeurs, économistes, dirigeants de syndicats patronaux et ouvriers).

Les résultats de cette enquête sont largement utilisés au cours de notre exposé, qui sera composé de deux parties:

- I. Les recommandations des Rapports de la Commission du Bilan et leurs incidences sur la politique économique.
- II. Les enseignements de l'expérience française.

I. LES RAPPORTS DE LA COMMISSION DU BILAN ET LEUR INCIDENCE SUR LA POLITIQUE ÉCONOMIQUE

On peut concevoir la comptabilité sociale comme un instrument d'observation méthodique de l'évolution économique. Elle doit alors répondre à un certain nombre de critères qui peuvent être groupés autour de trois idées directrices:

- 1° mesure de la productivité nationale;
- 2° expression du bien-être social;
- 3° vérification de la compatibilité des plans de différents centres de décision en vue d'assurer une expansion équilibrée de l'économie.

L'Estimation du Revenu National Français 1947 essayait de répondre aux deux premiers buts. Elle n'y a réussi que très imparfaitement faute de données statistiques suffisantes sur les revenus distribués. Les Rapports de la Commission du Bilan se sont attaqués délibérément au troisième but, celui de la compatibilité des plans.¹ Il était, en effet, urgent de fournir à la politique économique une vue précise sur la nature de l'inflation française et sur les moyens de la combattre. La méthode choisie fut celle de l'évaluation de *l'écart inflationniste* entre les ressources nationales disponibles et la somme des demandes globales des consommateurs, de l'économie productive, de l'État et de l'étranger. Cependant, entre le Premier et le Second

¹ Tout en touchant subsidiairement aux questions de la répartition de la charge fiscale, de la distorsion des prix et de la distorsion des structures qui concernent les deux premiers buts de la comptabilité sociale.

Rapports de la Commission du Bilan, un progrès considérable a été accompli dans l'application de cette méthode. Il est donc nécessaire d'examiner ces rapports séparément.

1. Le Premier Rapport de la Commission du Bilan (décembre 1947)

La totalité des ressources disponibles ne pouvant être connue avec une précision suffisante et la répartition des revenus, non plus que le comportement probable des consommateurs, n'ayant été étudiés, ce à quoi arrivait finalement le Rapport était une évaluation de trois déficits:

1° le déficit budgétaire de l'État calculé par la comparaison des dépenses budgétaires aux ressources fiscales probables;

2° le déficit de l'épargne 'ex ante' par rapport aux investissements projetés;

3° le déficit probable de la balance commerciale dont résulte un apport net de marchandises venant en déduction des déficits précédents.

L'écart inflationniste ainsi évalué avait donc une valeur toute relative. Il se réduisait en fait à la constatation implicite qu'étant donné les plans d'investissement et de dépense publique considérés comme pratiquement incompressibles et étant donné les possibilités d'obtention de crédits étrangers considérés comme inextensibles, il était nécessaire de réaliser une compression déterminée de la demande des consommateurs. Comme, dans l'état contemporain des anticipations, influencées par la psychose inflationniste, il était difficile de compter sur une abstention volontaire des consommateurs sous forme d'épargne, le Rapport préconisait une réduction autoritaire de la demande par voie d'impôts. Le Rapport n'oubliait d'ailleurs pas les deux autres moyens de réduire l'écart global entre les ressources et les demandes: l'accroissement de la productivité et une politique appropriée de crédit. Mais le premier de ces moyens ne pouvait évidemment donner des résultats tangibles en courte période et l'usage du second supposait une étude préalable du marché monétaire et financier qui n'a pas été tentée dans le Premier Rapport.

Deux hypothèses limitaient d'autre part la signification quantitative des évaluations de la Commission du Bilan:

1° le rapport supposait *explicitement* (p. 14) que 'pour les

investissements en *stocks*, il n'y avait ni stockage ni déstockage spéculatif et que leur accroissement correspondrait seulement à l'augmentation du rythme de la production';

2° le rapport supposait *implicitement* que la demande des consommateurs serait financée intégralement par les revenus distribués *pendant la période*, sans qu'une déthésaurisation importante des disponibilités précédemment accumulées puisse intervenir pour porter le surplus de la demande au-delà des revenus additionnels engendrés par le déficit public et l'investissement excédentaire.

Tout ceci montre que le Rapport de la Commission du Bilan *ne pouvait pas* donner une analyse exhaustive des facteurs complexes de l'inflation française.

Il est évident que certains de ces facteurs inflationnistes ne sauraient être éliminés dans une situation donnée et en admettant une politique économique déterminée. Certains sont d'ailleurs indissolublement liés à toute expansion économique et sont compensés entièrement ou partiellement par l'effet déflationniste d'une offre accrue. Les possibilités de l'intervention anti-inflationniste sont donc limitées, d'une part, par l'impossibilité physique ou sociale d'agir sur certains facteurs et, d'autre part, par les objectifs généraux de politique économique qui, à tort ou à raison, sont considérés comme jouissant d'une priorité intangible. Dans le cas de la France de 1948 devaient être considérés comme inéliminables, *en courte période*, les facteurs suivants:

a) *en raison de l'impossibilité physique ou sociale:*

- la diminution de la productivité due à la guerre;
- les conséquences des destructions;
- les grèves;
- les résultats de la mauvaise récolte 1947;
- les augmentations de salaires;
- l'augmentation des charges sociales;
- l'accroissement particulièrement rapide de la population.

b) *en raison de besoins urgents d'une politique tendant à la reconstruction rapide du potentiel productif de la nation:*

- le transfert des facteurs productifs vers la production des investissements indispensables;
- l'accroissement des exportations;

- l'accroissement du revenu total des consommateurs résultant de l'augmentation de la production prioritaire qui ne contribuait pas à l'offre immédiate de biens de consommation.

Restaient donc comme facteurs sur lesquels il était possible d'agir:

- l'accroissement du revenu *disponible* des consommateurs;
- l'accroissement spéculatif des stocks;
- l'accroissement de l'autoconsommation;
- l'accroissement de la propension à consommer;
- l'accroissement de la propension à investir dans les secteurs nonprioritaires;
- l'accroissement de la propension à dépenser des autorités publiques;
- l'accroissement du volume des crédits non indispensables à la production prioritaire;
- les impôts payés par les producteurs de biens à demande peu élastique;
- les prix administrés de produits de base.

De tous les moyens d'action possibles, le 1er Rapport de la Commission du Bilan a mis surtout en évidence la nécessité d'agir sur le revenu disponible des consommateurs par la voie de l'impôt. Il a mentionné, en outre, mais sans autre précision (p. 84) le rôle éventuel du crédit. Il a conclu à l'impossibilité d'obtenir une réduction substantielle de la dépense publique liée par des engagements d'investissement et de transfert. Il a exprimé la conviction que les facteurs inflationnistes tels que l'accroissement spéculatif des stocks et l'accroissement de la propension à consommer seront éliminés indirectement dès qu'une perspective de stabilité aura changé les anticipations des vendeurs et des acheteurs. Il n'a pas insisté sur les mesures à prendre pour limiter les investissements non-prioritaires. On peut donc dire que, tout en constatant l'incompatibilité des plans d'investissement, de dépense publique et de consommation, le Rapport a implicitement accordé une position dominante aux deux premiers et a réclamé la réduction du troisième par une amputation massive du revenu disponible au moyen de l'impôt.

Il est évident que les conditions dans lesquelles a été effectué le travail de la Commission du Bilan ont déterminé largement

les conclusions auxquelles elle *devait* aboutir. Malgré l'étendue de sa mission, la Commission ne pouvait reconsidérer et rebâtir sur des bases nouvelles l'ensemble de la politique économique française depuis la Libération. Elle était obligée d'accepter comme *donnés* l'existence du Plan de Modernisation et d'Équipement et les engagements pris par l'Assemblée Nationale dans le domaine de la Sécurité Sociale, de la reconstruction et d'autres mesures de redistribution par le Budget de l'État.¹ Il était donc inévitable que ses recommandations portassent presque uniquement sur le secteur privé. Encore était-il peut-être possible de ne pas les limiter au seul domaine de la consommation et d'approfondir davantage l'étude de l'investissement privé et des moyens de financement qu'il utilisait. D'autre part, il eut été souhaitable que la constatation *globale* de la nécessité d'accroître l'effort fiscal fût accompagnée d'un examen plus détaillé des moyens les mieux appropriés à réaliser cet effort avec une double préoccupation:

- celle de la justice sociale;
- celle de la productivité.

Il est vrai que deux obstacles majeurs se dressaient sur cette voie: le manque presque total de statistiques sur la distribution des revenus et sur la répartition de la charge fiscale et l'existence d'un vaste champ d'activité illégale (marché noir) qui échappait à toute investigation quantitative.

Quoiqu'il en soit, le 1er Rapport de la Commission du Bilan a eu le double mérite d'avoir constaté l'interdépendance inéliminable de divers éléments de la dépense nationale et de l'avoir mis sous une forme simple et compréhensive à la portée de ceux qui étaient appelés à diriger la politique économique de la France.

¹ A ce propos, il semble utile de distinguer le *double* rôle que la comptabilité sociale peut jouer en tant qu'instrument d'orientation de la politique économique:

(a) dans une planification partielle ou intégrale à *long terme*, la comptabilité sociale rétrospective et prospective devrait pouvoir aider à juger le plan lui-même, c'est-à-dire à apprécier son opportunité, le volume d'investissement projeté, les moyens de financement choisis; elle ne peut alors évidemment se servir des données du plan que dans *un* des modèles alternatifs auquel seraient opposés d'autres modèles tendant à la maximisation du résultat cherché, de façon à décaler le coût social du plan;

(b) pour répondre aux besoins de la politique économique à *court terme*, la comptabilité sociale ne peut faire autre chose que d'accepter le plan dominant existant et à chercher à lui subordonner les plans dominés, sauf à signaler les cas où la marge des ajustements possibles serait dépassée et où il y aurait lieu de modifier le plan dominant. Le Rapport de la Commission du Bilan doit être considéré sous ce second aspect.

2. *Les mesures de politique économique inspirées par le Premier Rapport de la Commission du Bilan*

Le Premier Rapport de la Commission du Bilan a eu certainement une influence directe sur de nombreuses mesures de politique économique. Il a également servi à préciser l'attitude revendicative de certains groupes économiques. Il y a cependant une mesure d'importance majeure qui sans aucun doute possible a été *directement* inspirée par ce Rapport et ceci non seulement en ce qui concerne le sens de l'intervention, mais aussi son *ordre de grandeur*: la loi du 7 janvier 1948 sur le prélèvement exceptionnel.

Avant d'aborder l'analyse du texte de cette loi, il importe d'examiner le premier projet gouvernemental¹ qui est relié plus directement aux constatations de la Commission du Bilan.

Pour lutter contre l'inflation, le ministre des Finances envisage une 'ponction' de 150 milliards environ, sur les revenus de tous les contribuables, à l'exception des salariés. Ceux-ci ne sont touchés que par le biais de l'impôt général sur le revenu, c'est-à-dire dans le cas d'un revenu imposable supérieur à 750.000 francs. Les autres professions, par contre, sont soumises au prélèvement sans qu'un minimum de revenu imposable soit prévu. En particulier, les agriculteurs exonérés de l'impôt doivent payer 5.000 francs pour les exploitations inférieures à 5 hectares, 10.000 francs pour les autres. D'une façon générale, le prélèvement est progressif et son taux varie suivant les tranches du revenu imposable entre 30 et 100 % de celui-ci.

Ce prélèvement s'accompagne de l'émission d'un emprunt de 3 % amortissable en 10 ans, et émis en 3 tranches; les contribuables assujettis au prélèvement pourront s'exonérer en tout ou en partie, en souscrivant à cet emprunt.

L'influence du rapport de la Commission du Bilan est visible en ce qui concerne les points suivants du projet:

1° le principe même du prélèvement sur les revenus personnels;

2° le montant global du prélèvement: 150 milliards. La Commission du Bilan évaluait l'écart inflationniste du premier semestre 1948 à 200 milliards.

¹ Les renseignements concernant le projet gouvernemental et ses modifications successives sont puisés dans l'Année Politique publiée sous la direction d'André Siegfried (Editions du Grand siècle - 1947, 1948).

3° la discrimination entre les contribuables; le Rapport de la Commission du Bilan constatait en effet que 'la hausse des salaires ne peut, à long terme, assurer aux travailleurs le bénéfice effectif des avantages accordés que si elle s'intègre dans une politique d'ensemble où les problèmes des dépenses publiques, de l'impôt, de l'investissement, des modes de financement, des échanges extérieurs, du ravitaillement soient résolus d'une manière coordonnée; à court terme, que si elle est compensée par un prélèvement direct sur d'autres catégories de revenus'. Or, parallèlement au projet de prélèvement, le ministre des Finances, M. René Mayer, a élaboré un projet de relèvement général des salaires rendu nécessaire par la situation sociale du pays. D'autre part, le Rapport de la Commission du Bilan dans le tableau IB (p. 95) signalait que la part de la consommation alimentaire dans la production brute totale tout en ayant diminué en volume par rapport à 1938 de 37,7 % à 33,4 %, au 2e semestre 1947, a augmenté en valeur de 37,7 % à 43 %, ce qui impliquait une hausse des prix et des revenus agricoles plus que proportionnelle à la hausse moyenne d'autres prix et d'autres revenus. En même temps, la part de l'autoconsommation augmentait en volume et en valeur, ce qui marquait la diminution de l'utilité marginale de la monnaie pour les agriculteurs à quoi contribuait entre autres la modicité des impôts qu'ils payaient. Les impôts directs personnels pour l'année 1948 se répartissaient en effet selon le Rapport en:

traitements et salaires	76 milliards de francs			
bénéfices industriels et commerciaux	44	..	..	..
bénéfices agricoles	6	..	..	..
impôt général sur le revenu	49	..	..	..
autres impôts	27	..	..	..

Le texte final de la loi du 7 janvier 1948 diffère du projet gouvernemental en ce que, d'une façon générale, il atténue les taux du prélèvement et les discriminations prévues, tout en continuant à exonérer les salariés et en accordant des réductions aux chefs de famille et aux sinistrés. Le prélèvement est exigible en totalité le 31 mai 1948, si les rôles dans lesquels il a été compris ont été mis en recouvrement avant le 1er mai 1948, et le dernier jour du mois qui suit celui de la mise en recouvrement du rôle dans le cas contraire.

En même temps, pour bien marquer le caractère anti-inflationniste de cette mesure exceptionnelle, la loi stipule une réduction de 10 % au minimum des dépenses budgétaires civiles autres que celles afférentes à la dette publique et à la dette viagère. Cette réduction des crédits devra entraîner, au cours de l'année 1948, une réduction du nombre des fonctionnaires qui ne pourra être inférieure à 150.000.

La loi sur le prélèvement fut suivie de près d'une série d'autres mesures économiques, telles que la dévaluation du franc, la liberté de l'or, le rétablissement d'un marché libre des changes, le retrait des billets de 5.000 francs, le reclassement des fonctionnaires, qui ont mêlé leurs effets déflationnistes et inflationnistes (dévaluation et reclassement) à son action.

L'étude des répercussions économiques de cet ensemble des mesures peut être tentée dans le cadre du 2ème Rapport de la Commission du Bilan.

3. Les résultats du Prélèvement Exceptionnel et le Second Rapport de la Commission du Bilan

Les prix de détail, en hausse continue jusqu'en février 1948, marquent un palier de février à août, mais les prix d'articles alimentaires continuent à monter. Les prix de gros, en palier de février à mai, recommencent à monter en mai. Cette hausse, due probablement aux facteurs saisonniers (alimentation) et psychologiques, menace de se transformer en une hausse définitive par le biais des revendications salariales.

Le Second Rapport de la Commission du Bilan constate en premier lieu que les mesures fiscales et monétaires de lutte contre l'inflation (augmentation de certaines taxes, amélioration des recouvrements et retrait des billets de 5.000 francs, et surtout prélèvement exceptionnel) ont eu pour effet direct de réduire très sensiblement le déficit des finances publiques. 'La source essentielle de l'inflation s'est trouvée, sinon complètement ni surtout définitivement supprimée, du moins momentanément maîtrisée à partir de la fin du premier trimestre' (p. 6).

En effet, le déficit des comptes publics qui à la fin du premier semestre a été de plus de 205 milliards 'a été plus que comblé grâce;

1° à la ressource fournie par les moyens publics de couverture du déficit extérieur	72
2° aux crédits à court terme (traites, bons du Trésor, etc.)	134
3° au prélèvement exceptionnel	85
	<hr/>
soit au total	291

En définitive, les comptes publics se sont soldés par un *excédent* de 86 milliards' (p. 6).

Cet 'excédent' appelle évidemment des réserves que nous présenterons un peu plus loin.

D'une façon générale, la balance du 1er semestre 1948 s'est établie et soldée comme suit (p. 8):

Total des ressources	3,038 milliards de frs.
Total des demandes	3,188 " " "
'Épargne des particuliers et entre- prises individuelles ayant équilibré les demandes aux ressources'	150 " " "

Pour la première fois en comptabilité sociale française, cette épargne n'est pas seulement déterminée par différence, mais calculée directement avec l'indication de ses emplois (Tableau Annexe C II).

L'examen de ces emplois montre entre autres une diminution des encaisses des particuliers de 108 milliards qui est plus que compensée par un accroissement des dépôts individuels de 144 milliards. C'est là le résultat du retrait des billets de 5.000 francs opéré au début du mois de février. 'Directement il a imposé aux détenteurs des billets bloqués une épargne forcée qui n'avait pas entièrement pris fin avec le semestre. En donnant un gage au Trésor il a permis une accélération du recouvrement des impôts. Par les craintes qu'il a suscitées concernant les autres formes de numéraire, il a provoqué un afflux des dépôts en banque, aux chèques postaux ou dans les caisses d'épargne, dont le Trésor a bénéficié soit directement, soit par l'affectation des disponibilités bancaires à des souscriptions aux effets publics' (Deuxième Rapport de la Commission du Bilan, p. VI-3). De notre part nous ajouterons que la déthésaurisation opérée par le retrait des billets de 5.000 francs a eu un effet parfaitement inflationniste puisqu'elle a mis à la disposition du Gouvernement, sous

forme de dépôts, une épargne liquide qui avait des chances de rester au moins partiellement oisive. C'est pour cette raison que nous ne pouvons considérer les 134 milliards de crédits à court terme comme étant susceptibles de former 'un excédent'. Quoiqu'en dise le rapport, le premier semestre n'a pas été complètement équilibré et ceci explique probablement en partie la montée des prix à partir de mai 1948.

4. Les recommandations du Second Rapport de la Commission du Bilan et leur incidence

En ce qui concerne le 2e semestre, le Rapport constate la menace d'un écart inflationniste de 172 milliards, constitué entièrement par le déficit public de 333 milliards diminué de la contrevaletur de l'aide américaine de 150 milliards.

'La partie la plus considérable des dépenses publiques se lie au concours que l'État apporte au financement des besoins des autres secteurs de l'économie: consommation des particuliers par le versement des pensions, des prestations sociales ou de subventions – investissements de l'économie par les indemnités de reconstruction et les avances à l'équipement.

'... le problème de fond des finances publiques est moins le montant excessif des dépenses de l'Administration que les promesses successives faites à divers éléments de la communauté, sans qu'il ait été énoncé clairement à qui les sommes nécessaires seraient reprises' (p. 12).

A cette constatation le rapport oppose le pourcentage global des charges fiscales par rapport au revenu national qui 'souligne la marge d'augmentation des rendements qu'une meilleure assiette et un contrôle plus efficace permettraient d'obtenir' (p. 12).

Par contre, 'aucun déficit n'apparaît en principe dans le financement des investissements, mais un problème tout nouveau va surgir.

'Comme il n'est pas vraisemblable que les ressources disponibles des affaires se trouvent précisément aux points où les investissements sont le plus nécessaires, une concurrence entre les entreprises qui disposent de fonds et celles qui font appel au crédit risquerait de développer une demande d'investissement supérieure à la capacité des industries du bâtiment et de l'équipement.

'Une telle situation semble exclure toute augmentation du

volume total des crédits bancaires, à part les crédits de campagne correspondant au rapport des récoltes, mais exige la mise au point de techniques qui parviennent, dans la limite des encours actuels, à redistribuer les crédits des entreprises qui disposent de ressources propres à celles qui ont besoin de concours bancaires' (p. 13).

Le rapport conclut à la nécessité de mesures immédiates de rééquilibre destinées à combler le déficit des finances publiques et à celle du maintien de la stabilité des salaires et de la limitation des crédits qui ne seraient pas compensés par un accroissement de la production. D'autre part, 'la tâche propre du second semestre est, par l'élaboration d'une réforme d'ensemble du système fiscal, de préparer une stabilisation définitive dès l'année 1949' (p. 14).

Il suffit de consulter une chronologie quelconque des événements économiques en France pour constater que les buts énoncés dans le Rapport étaient ceux-là mêmes que poursuivirent entre août 1948 et janvier 1949 les gouvernements successifs. Il serait cependant pour le moins hasardeux d'en conclure immédiatement à une influence *directe* du 2^e Rapport de la Commission du Bilan sur la politique économique:

1^o parce qu'aucun témoignage sérieux n'est venu confirmer cette impression au cours de l'enquête de l'I.S.E.A., comme cela a eu lieu dans le cas du premier Rapport.

2^o parce qu'au cours des dernières années il s'est constitué en France une véritable doctrine sur les causes de l'inflation et sur les moyens de la combattre; les rapports de la Commission du Bilan ont certainement contribué au raffinement de certains aspects de cette doctrine, mais il n'est pas exclu non plus qu'en plusieurs points ils en aient été influencés eux-mêmes. C'est là, en effet, un des dangers de la 'comptabilité' sociale que tant qu'elle ne deviendra pas une vraie comptabilité faite de chiffres certains, assemblés suivant des combinaisons éprouvées, il y aura toujours possibilité d'un aménagement conscient ou inconscient de ces données suivant les vues subjectives du comptable social.

Plus important que de constater l'originalité première des conclusions d'une comptabilité sociale est le point de savoir dans quelle mesure elle fournit à l'action l'indication des moyens concrets d'aboutir aux objectifs préconisés. Dans le cas du

Second Rapport de la Commission du Bilan ces objectifs étaient, nous l'avons vu:

1° mesures immédiates de rééquilibrage destinées à combler le déficit des finances publiques;

2° élaboration d'une réforme d'ensemble du système fiscal en vue de préparer une stabilisation définitive dès l'année 1949;

3° limitation des crédits qui ne seraient compensés par un accroissement de la production.

1° Mesures immédiates dans le domaine des finances publiques

Le Rapport commence par distinguer les dépenses directes des administrations publiques et les dépenses de transfert, d'une part, les dépenses courantes et les dépenses de capital, d'autre part.

De cette distinction, il résulte que la part des dépenses directes, courantes et en capital, dans les dépenses totales de l'État est moindre en 1948 qu'en 1938. Ont diminué encore plus considérablement les dépenses courantes de transfert à la suite de la réduction du poids de la dette publique par l'effet de l'inflation. Par contre, une augmentation massive de plus de 100 % apparaît en ce qui concerne le pourcentage des dépenses de transfert en capital.

Cette constatation permet aux auteurs du Rapport de tirer une première conclusion importante du point de vue de la politique économique et de la politique tout court:

'Cette analyse de la structure des dépenses publiques réduit la probabilité qu'une réduction substantielle des dépenses propres des administrations civiles puisse être accomplie dans un bref délai, et écarte la question préalable qui n'a pas cessé d'être opposée à l'accroissement nécessaire des recettes fiscales.'

Les transferts en capital incriminés se composent des avances à l'investissement et des indemnités de reconstruction. Mais les premières sont en grande partie couvertes par la contre-partie de l'aide américaine. 'Il reste donc la charge de la reconstruction, qui n'a pas encore trouvé les ressources susceptibles d'en constituer la contrepartie' (p. IV-6).

'A la réparation des dommages, il convient d'associer tous ceux qui avaient quelque chose à perdre et qui ont été épargnés. A la reconstruction des logements, il convient d'associer tous

ceux qui ont pu conserver un toit. Enfin, à la charge de la reconstruction dans son ensemble, il convient d'associer tous ceux à qui, directement ou indirectement, elle rapporte, c'est-à-dire ceux qui bénéficient le plus directement du surcroît d'activités économiques qu'elle répand dans le pays, et même de l'inflation qu'elle a contribué à entretenir.'

De là le Rapport conclut qu'il existe trois modes de financement appropriés à la reconstruction:

- 1° des impôts sur les capitaux;
- 2° des prélèvements sur les bénéfices;
- 3° des prélèvements sur une majoration des loyers.

2° Réforme d'ensemble du système fiscal

Le Rapport constate la contradiction entre l'élévation des taux et la faiblesse des rendements du système fiscal français. Cette faiblesse est due au mode de calcul des revenus imposables des exploitations industrielles, commerciales et agricoles. Au surplus, sauf en ce qui concerne les revenus du travail et du capital mobilier et immobilier, l'impôt est perçu avec un retard moyen d'un an et la dépréciation monétaire aboutit à un dégrèvement de fait très important.

La réforme fiscale doit donc viser à 'obtenir que des taux d'impôts applicables soient effectivement appliqués sur le montant réel des revenus de toutes les catégories de la population' (p. IV-10).

La comptabilité sociale aurait évidemment dû fournir à la politique économique la clé de la répartition de la charge fiscale suivant le montant réel des revenus. Le Rapport tente de donner un tableau de la distribution des revenus entre le travail, le capital et l'entreprise, mais 'il a pleinement conscience des incertitudes qui, dans l'état présent des statistiques, et en particulier quand la documentation fiscale ne peut être utilisée pour déterminer le montant des revenus d'exploitation, sont inséparables d'une telle recherche' (p. V-4).

Ainsi, en ce qui concerne ce point important, nous sommes obligés de constater que l'apport de la Commission du Bilan à la politique économique se limite à l'énoncé d'un principe qui ne peut pas être considéré comme une découverte spécifique à la méthode comptable. La vraie application de la comptabilité sociale au problème de la charge fiscale reste à faire. Elle ne

pourra être menée à bien que par l'amélioration des statistiques de base. En l'état actuel de celles-ci, les auteurs du 2e Rapport de la Commission du Bilan n'ont certainement pas pu faire mieux.

3° *Limitation des crédits*

Le Compte des Ressources et Opérations en Capital de l'Economie Productive montre que les investissements du premier semestre ont pu être intégralement couverts par les ressources financières dont disposait le secteur productif, du double fait des fonds propres qu'il a accumulés par ses ventes et des concours de l'État. Les perspectives du second semestre vont dans le même sens.

'Dans une telle conjoncture, et quand l'accroissement du volume de la production est limité par les facteurs matériels, il n'y a plus place pour un accroissement du montant total des crédits. La politique du crédit prend alors une importance qui ne le cède qu'à celle des finances publiques' (p. VI-6).

'La politique financière, par l'impôt et le maniement du crédit doit parvenir à mobiliser les épargnes des affaires, pour que les fonds qui se dégagent chez les uns s'investissent chez les autres, ou, en servant au remboursement des crédits, dégagent dans les limites des encours actuels une marge disponible pour le financement bancaire d'entreprises qui, sans ressources propres suffisantes, doivent faire face à des investissements au cours du second semestre' (p. VI-6).

Pour faciliter cette tâche à la politique économique, le Rapport dégage un certain nombre de principes à suivre dans la distribution du crédit:

a) Il nie le prétendu caractère non-inflationniste de l'escompte qu'il assimile du point de vue des effets globaux sur l'économie à d'autres formes de crédit.

b) Il tente de préciser la limite tolérable du crédit: 'Quand la contre-partie du surplus d'importations entre dans les recettes de l'État, quand les entreprises absorbent les souscriptions directes des particuliers, il reste à partager entre le financement du déficit public et le financement des investissements productifs un montant de crédits qui ne doit pas dépasser les liquidités accrues que les particuliers et les entreprises, en l'absence de hausse des prix, sont disposés à conserver en monnaie ou en dépôts' (p. VI-8).

c) Il appartient à la Banque Centrale de définir le volume global du crédit possible. Mais l'épargne ex ante n'est pas connue. Finalement, le Rapport se borne donc à constater que 'la mesure du crédit sain est fournie non par l'accroissement de la valeur mais par le seul accroissement de la production'. Il note également en passant que 's'il est naturel (en temps d'inflation) que les entreprises s'efforcent d'employer toutes leurs disponibilités en immobilisations ou en stocks, il n'appartient pas au système bancaire de leur en donner les moyens' (p. VI).

* * * * *

De toutes les recommandations du 2^e Rapport de la Commission du Bilan, celles relatives à la limitation des crédits semblent avoir laissé les traces les plus visibles sur les mesures concrètes de politique économique, sans que toutefois il soit possible aux auteurs du Rapport d'en revendiquer avec certitude la 'paternité'.

Le Rapport est daté du mois d'août 1948. Or, c'est le 29 septembre 1948 qu'interviennent les principales mesures définissant la nouvelle politique du crédit¹:

'a) Les banques ne peuvent plus développer leurs crédits aux entreprises en réduisant leurs emplois en valeurs du Trésor: elles doivent maintenir une réserve d'effets publics égale, au moins, à 95 % du montant détenu par elles au 30 septembre.

'b) Les banques doivent, par ailleurs, remployer 20 % au moins de l'augmentation éventuelle de leurs dépôts à l'acquisition d'effets publics en sus du minimum indiqué ci-dessus, le surplus de cette augmentation pouvant seul être consacré à d'autres emplois, et notamment à de nouveaux crédits.

'c) Enfin, par la généralisation des plafonds de réescompte, la Banque de France a limité le concours que les banques peuvent obtenir de sa part.

'Dès lors, pour être certains de disposer en permanence de la souplesse de trésorerie indispensable au bon fonctionnement de leur service de caisse, les banques sont obligées de n'utiliser qu'avec circonspection de la faculté qui leur a été laissée de remployer 80 % de leurs nouveaux dépôts en actions de crédit.'

C'est évidemment la troisième mesure qui est la plus impor-

¹ Résumé d'après le Troisième Rapport du Conseil National du Crédit - Paris, Imprimerie Nationale, 1949, p. 43.

tante et la plus directement apparentée aux recommandations du Rapport de la Commission du Bilan. Elle revient, en effet, à limiter le volume global du crédit et à supprimer le traitement privilégié réservé jusqu'ici aux escomptes de papier commercial en les soumettant à la réglementation générale établie par la Décision du Conseil National de Crédit du 9 janvier 1947. Le banquier a dorénavant le devoir de s'informer, à l'occasion de ces escomptes comme des autres opérations, des motifs du recours au crédit et, le cas échéant, d'en justifier à l'Institut d'Émission.¹

D'autre part, les mesures de discrimination prévues par la réglementation du 9 janvier 1947 ont été complétées par l'établissement d'une liste de produits dont l'insuffisance constitue une nouvelle source de 'goulots d'étranglement'. Cette liste détermine les secteurs industriels et agricoles pour lesquels la limitation du crédit bancaire ne doit pas ajouter ses effets aux autres causes d'insuffisance de la production. Par contre, certaines branches qui disposent, à l'évidence, de ressources propres suffisantes sont soumises à des dispositions particulières, allant de la simple recommandation faite aux banques, à la prohibition de tout octroi de crédit.

L'importance de ces décisions ressort du fait qu'au cours du 1er semestre 1948, l'accroissement des crédits bancaires aux entreprises a été de 163 milliards, c'est-à-dire qu'il a plus que compensé l'action déflationniste du prélèvement pour autant que celui-ci touchait, par le biais des revenus des entrepreneurs individuels (particulièrement nombreux en France), les trésore-

¹ L'exception dont bénéficiait jusqu'ici le papier commercial avait été motivée de la façon suivante par le 2e Rapport du Conseil National de Crédit, Année 1947 (p. 61): 'En ce qui concerne le papier commercial, il a paru souhaitable pour l'économie générale du pays, de favoriser un procédé dont le fondement repose sur la mise en circulation des marchandises. L'intérêt de cette mesure apparaît d'autant mieux qu'un des objectifs principaux de la politique économique du gouvernement a été constamment la lutte contre la retention des produits. Ainsi la Banque de France, tout comme le Conseil National du Crédit, a-t-elle tenu à réserver un traitement privilégié aux escomptes d'effets émis en contrepartie de livraisons de marchandises. Ceux-ci bénéficient du taux d'escompte le plus bas'.

Toutefois, déjà à ce moment, le Conseil du Crédit se rendait compte du rôle inflationniste de l'escompte. Nous lisons, en effet, à la page 13 du rapport cité: 'Il n'est pas jusqu'à l'escompte de papier proprement commercial qui vu sous un certain angle, ne présente quelque danger: s'il est vrai qu'il n'est accordé qu'en fonction et à l'occasion d'une vente de marchandises, qu'à ce titre, par conséquent, le crédit encourage bien le "déstockage" et la circulation des produits, il reste exact que le vendeur, tirant sur ses débiteurs des effets d'un montant majoré par la hausse des prix, exerce sur le crédit, lorsqu'il le remet à l'escompte, une pression d'autant plus mécanique que la qualité de ce papier ne prêtant pas en principe à discussion, cette pression répercute sans résistance celle des prix.'

ries des entreprises. L'accroissement du crédit par la voie d'escomptes a été particulièrement sensible. Celles-ci sont en effet passées de 69 milliards au 31 décembre 1947 à 165 milliards au 30 juin 1948. En même temps le rapport Escomptes/Transactions¹ augmentait de 1, en décembre 1947, à 1,52 en juin 1948. Depuis le mois de septembre 1948, ce rapport se stabilise aux environs de 1,70.

II. LES ENSEIGNEMENTS DE L'EXPÉRIENCE FRANÇAISE

Pour apprécier à leur juste valeur les enseignements de l'expérience française en matière de comptabilité sociale, au service de la politique économique, il importe de se rendre compte:

1° de l'insuffisance des documents qui ont été mis à la disposition de la politique économique;

2° de l'apport positif de ces documents malgré leur insuffisance;

3° des problèmes posés et des voies possibles de progrès dans le domaine théorique et pratique.

1. *Les insuffisances de la comptabilité sociale française*

Il n'est pas dans nos intentions de présenter une critique exhaustive des sources de renseignements et de la présentation actuelle de la comptabilité sociale française. Cette critique a été faite à deux reprises par François Perroux.² Des améliorations substantielles ont été réalisées depuis en ce qui concerne certaines sources de renseignements (par exemple, pour le secteur public) et en ce qui concerne la présentation (surtout le Second Rapport de la Commission du Bilan). Mais les efforts des économistes et des statisticiens du Commissariat Général du Plan se heurtent toujours au manque absolu de données statistiques fondamentales et à mesure que l'année de base (1938) sur laquelle les informations les plus complètes ont pu être obtenues s'éloigne dans le temps, les indices qui permettent l'extrapolation perdent de plus en plus leur valeur.

¹ Troisième Rapport du Conseil du Crédit, p. 74.

² 'Le Revenu National', Presses Universitaires de France, Paris, 1947, p. 97 et suiv. 'Les Rapports entre les Comptabilités Privées et la Comptabilité Nationale, et l'intérêt qu'il y aurait pour celle-ci de disposer de comptabilités normalisées.' Exposé devant le Conseil Économique, 4 février 1949.

Il faut donc constater en toute objectivité que, d'une façon générale, les chiffres mis à la disposition de la politique économique par la Comptabilité Sociale en France étaient loin de présenter une exactitude suffisante pour donner une mesure quantitative précise de l'intervention gouvernementale. Néanmoins, dans des cas particuliers, et en fonction des objectifs spécifiques que visaient les Rapports du Bilan, ces chiffres ont pu orienter l'action économique quant au *sens* et à l'*ordre de grandeur* des mesures à prendre. C'est ainsi que l'écart entre les ressources et les besoins de financement du déficit budgétaire et des investissements, tel qu'il *s'annonçait* en décembre 1947, compte tenu des hypothèses admises, pouvait être considéré comme valablement déterminé pour deux raisons:

a) puisqu'il résultait de l'étude des éléments relativement le mieux connus: budget de l'État, plans d'investissements, apport net de l'étranger;

b) puisque, comme le fait remarquer le Premier Rapport de la Commission du Bilan (p. 74), les erreurs éventuelles dans l'appréciation des ressources avaient une répercussion automatique et équivalente du côté de l'appréciation des demandes et, par conséquent, n'influençaient pas la différence entre ces deux grandeurs.

Cette constatation ne présume en rien de nos conclusions quant à la *signification réelle* de l'écart évalué. Nous y reviendrons plus loin (voir plus loin le point 3).

Un autre aspect de l'insuffisance de la comptabilité sociale française résulte du manque total de certaines grandeurs et de certaines décompositions essentielles du point de vue de la politique économique.

Parmi ces grandeurs, nous croyons devoir relever en premier lieu:

- la répartition des revenus entre les principales catégories de bénéficiaires et suivant leur importance,
- la répartition de la charge fiscale,
- la répartition de la consommation en biens durables, non-durables et services et en biens de consommation générale et de luxe,
- la répartition des investissements suivant le temps de leur maturation,

- les modes de financement des investissements,
- les mouvements financiers et monétaires à partir des excédents des comptes d'exploitation.

Il est en effet impossible de dire quoi que ce soit de *précis* en matière de politique fiscale sans connaître la répartition des revenus et de la consommation. Il est également extrêmement *aléatoire* de vouloir limiter la demande effective globale sans se rendre compte préalablement de tous les investissements projetés et en cours du temps, de leur maturation et des moyens de financement dont ils peuvent disposer. Et, si ces faits n'ont pas échappé aux artisans de la comptabilité sociale française, si ces derniers ont accompli même des efforts louables (2e Rapport de la Commission du Bilan) pour compléter ces lacunes, il n'en reste pas moins vrai qu'ils ne sont pas arrivés, à l'heure actuelle, faute de statistiques adéquates, à fournir à la politique économique des renseignements valables en ces matières.

2. *L'Apport positif de la comptabilité sociale française*

Malgré ses insuffisances graves et son caractère récent, la comptabilité sociale française peut inscrire à son actif certaines réalisations incontestables.

On nous permettra, peut-être, de ne pas insister à ce propos sur les mesures concrètes de politique économique qu'elle a suscitées. La seule mesure importante qui, sans hésitations possibles, peut être considérée comme inspirée *directement* par la comptabilité sociale – le prélèvement exceptionnel du 7 janvier 1948 – a eu probablement l'effet d'un coup d'arrêt momentané de la poussée inflationniste. Mais cet effet a été considérablement diminué par le développement extraordinaire du crédit bancaire aux entreprises que le Premier Rapport de la Commission du Bilan n'a pas pu prévoir faute d'avoir étudié le marché monétaire et financier. Et, d'autre part, dans la multitude des facteurs qui conditionnaient au début de 1948 le développement de la conjoncture française, il est difficile d'attribuer une importance décisive à une mesure qui amputait sporadiquement le pouvoir d'achat global d'une centaine de milliards au maximum.

Le véritable apport de la comptabilité sociale doit donc être recherché ailleurs. Il réside avant tout dans son *œuvre éducatrice*. Pour la première fois en France les hommes politiques et les

fonctionnaires ont été mis en face d'un tableau d'ensemble de la vie économique du pays, tableau composé de grandeurs chiffrées et indissolublement liées. Pour imparfaite qu'elle fût, cette image leur a donné le sens de la solidarité de tous les phénomènes économiques. Elle leur a appris à distinguer entre l'effet immédiat direct de leurs actions et les effets secondaires quelquefois beaucoup plus importants qui pouvaient en résulter sur l'ensemble du système. Elle a contribué à dissiper quelques croyances aussi profondément enracinées que mal fondées sur le rôle économique de l'impôt, du crédit et de la monnaie, sur les rapports entre les salaires et les prix, entre l'investissement et l'épargne.

En ouvrant les esprits des hommes d'action aux aspects pratiques et quantifiés de ce qu'ils ne considéraient jusqu'ici que comme des théories abstraites, les premiers essais de comptabilité sociale en France ont préparé la voie la plus sûre au progrès ultérieur de cette technique. Ce n'est qu'au contact avec la réalité que la théorie macroéconomique trouvera des sources d'inspiration, des champs d'expérience et des moyens de contrôle qui sont nécessaires à son perfectionnement. Et c'est uniquement par le perfectionnement de la Théorie sous-jacente que la comptabilité sociale pourra devenir un instrument vraiment utile de la politique économique.

3. Les problèmes posés par l'expérience française de la comptabilité sociale

La courte application de la comptabilité sociale en France a posé à la théorie et à la pratique économiques des problèmes extrêmement nombreux et divers. En voici quelques-uns:

- décomposition des grandeurs globales de façon à obtenir un système exhaustif et maniable de variables suffisamment homogènes
- construction de réseaux de flux monétaires¹
- construction d'indices caractéristiques d'une évolution économique²
- classification économique des impôts
- traitement des subventions

¹ Cf. G. Th. Guilbaud et J. Marczewski: 'Essai d'une interprétation graphique de la comptabilité sociale', *Économie Appliquée*, Janvier-Mars 1949.

² Cf. J. Marczewski: 'La Comptabilité Sociale et ses liaisons avec les comptabilités publique et privée', *Annexe, Économie Appliquée*, même numéro.

- traitement du secteur nationalisé¹
- évaluation du capital efficient²
- rapports de domination entre les plans de divers centres de décision³
- liaisons de la comptabilité sociale avec les comptabilités privées et publiques⁴
- signification de l'écart inflationniste.⁵

De tous ces problèmes, c'est le dernier qui a soulevé en France les discussions les plus nombreuses et les plus passionnées. Nous lui réservons le reste de notre exposé.

Dans sa conception primitive simplifiée à l'extrême dans des buts didactiques – et qui n'était d'ailleurs point particulière aux auteurs français – l'écart inflationniste est représenté comme une *mesure* des déséquilibres fondamentaux et de l'effort à faire pour rendre à l'économie les conditions de sa stabilité.⁶ C'est le 'trou à combler' par une masse exactement équivalente en volume, le déficit d'une balance comptable à équilibrer. Pour fausse qu'elle pût être, cette conception a rendu des services réels: sa simplicité apparente en faisait un instrument d'argumentation extrêmement puissant susceptible de triompher des oppositions politiques en matière fiscale.

Une conception plus raffinée voit dans l'écart inflationniste une *évaluation des tensions initiales* qu'il s'agit de neutraliser par des mesures immédiates de rééquilibre.⁷

Enfin, une troisième conception considère l'inflation comme 'tout autre chose qu'un excès global de la demande sur un montant global du produit. . . Elle est un *système de désajustements* nés dans des zones diverses de l'économie et propagés dans des *zones de transmissions* qui les amortissent ou les développent'.⁸

A notre avis, pour dégager le sens véritable de ce qu'on est convenu de qualifier – après les auteurs anglo-saxons – d'écart inflationniste, il convient d'examiner la façon dont cette gran-

¹ François Perroux: 'Les nationalisations et la Comptabilité nationale', *Économie Appliquée*, Janvier-Mars 1949.

² François Perroux: 'L'évaluation du capital national', *Économie Appliquée*, Octobre-Décembre 1948.

³ François Perroux: étude en préparation.

⁴ Cf. J. Marczewski: 'La Comptabilité Sociale et ses liaisons avec les comptabilités publique et privée', Annexe, *Économie Appliquée*, même numéro.

⁵ François Perroux: Exposé devant le Conseil Économique, 7 février 1949.

⁶ Premier Rapport de la Commission du Bilan, p. 18.

⁷ Deuxième Rapport de la Commission du Bilan, Introduction, p. 14, et exposé général, p. 3.

⁸ François Perroux: Exposé devant le Conseil Économique, 4 février 1949, p. 13.

deur est calculée. L'écart inflationniste est la différence entre deux totaux issus d'une même grandeur évaluée *ex ante* pour une *période* future. Cette grandeur n'est autre chose que le produit national brut probable qui est présenté alternativement comme une somme de biens et services évalués au prix initial du marché et comme une somme des revenus engendrés par cette production et *évalués également à leur taux initial*. Le premier total est alors obtenu en déduisant de la somme de biens et services tous ceux qui pendant la période n'absorbent pas les revenus formés. Le second total est formé en déduisant de la somme des revenus formés tous ceux qui pendant la période, n'absorbent pas les biens produits. La capacité d'absorption est dans les deux cas évaluée *au prix initial*.

La différence entre les totaux ainsi calculés représente donc, dans le cas d'inflation, l'excédent des revenus 'absorbateurs de produits' sur les produits 'absorbateurs de revenus', les capacités d'absorption des uns et des autres étant évaluées *au prix initial*.

Cet excédent ne représente pas l'évaluation des tensions *initiales*. Il en indique tout au plus le sens. On ne peut, en effet, qualifier d'initiale la pression qui doit s'exercer pendant *toute la période*. Les tensions initiales résultent des premières parcelles de revenus excédentaires paraissant sur le marché. Pour les évaluer, il faudrait pouvoir dresser un budget national jour par jour ou tout au moins semaine par semaine d'une paye d'ouvriers à l'autre, en utilisant chaque fois les prix initiaux de chaque période. Et encore dans ce cas on n'aurait pas éliminé les effets cumulatifs à l'intérieur de la période.

Cet excédent ne donne la mesure 'de l'effort à faire pour rendre à l'économie les conditions de sa stabilité' que si l'on convient d'avance que cet effort doit être réparti au cours de la période de façon à compenser exactement au jour le jour la formation des parcelles excédentaires de revenu. Dès que cette condition n'est pas remplie – et pratiquement elle ne peut l'être – l'hypothèse du prix initial cesse d'être applicable, les effets cumulatifs sont déclenchés et la 'mesure' de l'effort à faire perd toute sa signification quantitative.

Est-ce à dire que la méthode des budgets nationaux est dépourvue d'utilité pratique et de signification théorique? Certainement non, à condition de ne la considérer que comme un *moyen de contrôle de la compatibilité des plans* de divers centres de

décision *au moment* où le budget est établi.¹ Mais si les plans ne sont pas compatibles entre eux, les différences constatées peuvent-elles servir de *mesure de modification nécessaire* pour assurer leur compatibilité?

Deux questions se posent alors devant les responsables de la politique économique:

- celle de la hiérarchie des plans² qui doit être établie en pleine connaissance de cause, puisqu'elle décide du niveau du bien-être social pendant la période;
- celle de l'incidence de la modification d'un plan sur les autres plans.

Or, en ce qui concerne ce second point, une distinction semble absolument indispensable. Certains plans sont les plans véritables, c'est-à-dire qu'ils n'existent encore que sur le papier. Ces plans-là peuvent être ajustés à volonté *au moment de l'établissement du budget national*. L'écart inflationniste donne effectivement la mesure de leurs modifications nécessaires. Si toute la dépense nationale n'était que l'exécution fidèle de ces plans, leur ajustement *préalable* aurait pu assurer l'équilibre global de l'économie.

Mais la plupart des plans qui constituent le budget national sont des plans *en cours d'exécution*. De plus, ils sont intimement liés les uns aux autres, non pas seulement par des relations mécaniques mises à jour par la comptabilité en partie double, mais aussi par des relations spécifiquement économiques dont les théories des anticipations, du multiplicateur et du principe d'accélération ne donnent qu'une idée fort grossière. Prenons un exemple concret. Nous admettons la priorité des plans d'investissements et de dépense publique. Dans ces conditions, le plan de consommation doit être réduit d'un montant annuel donné. Nous nous proposons de le faire par une amputation autoritaire du revenu disponible. Pour que l'intervention soit efficace, il faut:

1° que l'investissement et la dépense publique ne soient eux-mêmes modifiés par la modification de la consommation que dans une proportion calculable;

¹ Cf. J. Marczewski: 'La Comptabilité Sociale et ses liaisons avec les comptabilités publique et privée', *Économie Appliquée*, Février-Mars 1949.

² L'expression est de François Perroux.

2° que la propension à consommer¹ ne se modifie pas ou se modifie d'une façon prévisible;

3° que la réduction de la consommation ou son freinage interviennent *en même temps* que l'accroissement de la dépense d'investissement et de la dépense publique.

Il ne suffit donc pas que l'impôt opère à un moment quelconque de la période l'amputation adéquate du revenu disponible. Il faut que cette amputation ait lieu au fur et à mesure de la création des revenus. Une étude *dans le temps* de l'incidence de l'impôt sur le revenu disponible est indispensable. Il faut d'autre part que l'investissement excédentaire par rapport aux prévisions du plan soit limité par une réglementation adéquate du crédit et éventuellement par des mesures directes de réglementation. Dans les cas extrêmes, il faut également recourir à des mesures directes contre le développement de la propension à consommer.

C'est seulement sous réserve de toutes ces conditions que l'écart inflationniste qui exprime le désajustement initial des plans peut avoir la prétention de mesurer l'ampleur de l'intervention nécessaire. Dès la première infraction à cette discipline, il perd sa signification quantitative. Une nouvelle confrontation des plans devient alors nécessaire.

Tout ceci concerne d'ailleurs uniquement *l'ajustement global* de la demande aux ressources disponibles. Comme le fait justement remarquer François Perroux, la notion d'inflation n'est pas épuisée par un équilibre global de ce genre. Des désajustements particuliers à certains secteurs ou à certains produits de base restent possibles avec leurs effets de propagation et de cumulation susceptibles de rompre l'ajustement de quantités globales péniblement réalisé. La méthode des budgets nationaux demande donc à être complétée par une étude minutieuse des marchés et des prix particuliers. Ainsi que l'ont observé les auteurs de plusieurs réponses à l'enquête de l'I.S.E.A., la comptabilité sociale ne doit pas prétendre à *remplacer* les statistiques traditionnelles des prix et des indices, mais à les compléter et à leur fournir un cadre général à remplir.

¹ Dans le sens du rapport Revenu consommé/Revenu disponible.

CONCLUSION

La Comptabilité sociale française est encore à l'heure actuelle à ses débuts du point de vue des applications pratiques.

Son caractère récent excuse ses insuffisances qui tiennent moins aux conceptions dont elle procède qu'au manque de statistiques de base irremplaçables.

Telle qu'elle est, elle a déjà rendu des services réels à la politique économique. Son influence directe est encore très limitée et ses indications quantitatives sont incertaines. Mais son influence indirecte dans le domaine de l'éducation des gestionnaires nationaux ne doit pas être sous-estimée.

Les problèmes que pose le perfectionnement souhaitable de la comptabilité sociale en France sont d'une double nature:

1° Son progrès est impossible sans une amélioration fondamentale des sources de renseignements statistiques dont elle dispose. Les travaux actuellement poursuivis par la VI^e section du Conseil Supérieur de la Comptabilité visent à rendre utilisables dans ce but les comptabilités privées et publiques. Il serait souhaitable, d'autre part, qu'un recensement régulier de la production rendît possible la collecte des données ainsi normalisées et rendues additives.

2° Dans le domaine conceptuel, le progrès de la comptabilité sociale en France est strictement lié au développement de la théorie macroéconomique. Il semble que, sous ce rapport, le retard considérable qui existait entre la France et les pays les plus avancés en cette matière diminue à une allure satisfaisante. Mais l'avant-garde de la science n'a pas elle-même atteint dans cette direction un champ d'expansion parfaitement solide. On peut espérer que les expériences récentes de comptabilité sociale poursuivies dans tous les pays contribueront à la formation graduelle du fonds de connaissances indispensable à toute généralisation fructueuse.

ENGLISH SUMMARY

RECENT EXPERIENCES IN THE USE OF SOCIAL ACCOUNTING IN FRANCE

by Jan Marczewski

INTRODUCTION

The concept of social accounting already has a long history in France. Quesnay, with his 'Tableau Économique' (1758), was the first to attempt a comprehensive description of a national economy by a system of interdependent aggregates. In 1791 the famous chemist, Lavoisier, established a detailed system of accounts for the town of Paris and stressed that the inauguration of a unit with the specific task of keeping the accounts of the nation would prove invaluable to government bodies.

These early suggestions did not, however, receive the attention they deserved from public authorities, and up till 1945 evaluations of national wealth and income, though numerous and often interesting from the theoretical point of view, were only carried out by individual economists and statisticians. These efforts in research had no noticeable influence on economic policy, nor was their importance widely understood in academic circles.

The revival of the idea of social accounting in recent years is mainly due to the works of M. André L. A. Vincent, who in 1941¹ put forward an original system of accounts, and of M. François Perroux, who in 1945 and 1946 presented the first thorough and constructive analysis of the general theory of national income² to the French public.

Since 1945 the following documents of social accounting have been published:

- (1) Institut de Conjoncture: 'Points Économiques No. 5, VIe Partie: Richesse et Revenu de la France' – December 1945.
- (2) Commissariat Général de Plan: 'Données statistiques sur la situation de la France au début de 1946, rassemblées en vue des négociations de Washington' – March 1946.
- (3) Commissariat Général de Plan: 'Documents relatifs à la Première Session du Conseil du Plan' – 16th–19th March 1946.

¹ *L'Organisation dans l'entreprise et le nation*, Nancy, 1941.

² *Le Revenu National*, Paris, 1946, and many other publications.

- (4) Commissariat Général de Plan: 'Estimation du Revenu National Français' – 1947.
- (5) Commission du Bilan National: 'Perspectives des Ressources et des Besoins de l'Économie Française au cours du premier semestre et de l'année 1948' – December 1947.
- (6) Commission du Bilan National: 'Ressources et Besoins de l'Économie Française en 1948. Résultats du premier semestre et perspectives du second' – April 1948.

It is almost certain that all these works have exerted some *indirect* influence on the government's economic policy, in so far as they helped to shape the opinions of those responsible for the management of public affairs, but it is of course impossible to measure the real extent of an influence of this nature. We must turn, for our consideration, to examples where decisions of policy offer undeniable evidence that these works actually influenced the trend of national economic policy.

This seems to be true regarding the two last documents, i.e.:

- (1) Commission du Bilan National: 'Perspectives des Ressources et des Besoins de l'Économie Française au cours du premier semestre et de l'année 1948' – December 1947.
- (2) Commission du Bilan National: 'Ressources et Besoins de l'Économie Française en 1948. Résultats du premier semestre et perspectives du second' – April 1948.

The reporter of the Commission mainly responsible for the economic background of those papers was M. Pierre Uri, while the statistical figures were elaborated by MM. Dumontier, Coutin, Delcourt, Froment and Gavanier – all members of the Commissariat Général du Plan.

In order to ascertain the impact on economic policy of the documents under consideration, the Institut de Science Économique Appliquée proceeded to make a thorough and far-reaching enquiry into the opinions held by the principal public servants and other people responsible for the direction of national policy (Ministers, Ministerial directors, Members of Parliament, workers' and employers' unions), social accountants, and some outside observers (e.g. professors of economics). The main items of the questionnaire put to these people were:

- (1) Did the published social accounts help to form, elucidate or change your opinion on the country's economic situation?

- (2) Do they constitute a real improvement on statistical information used hitherto?
- (3) Are you able to name any concrete decisions you have taken which were based on information provided by social accounting?
- (4) Did this information serve to give only a general direction to policy or did it also provide a definite yardstick or at least an 'ordre de grandeur' for the action to be taken?
- (5) What do you think about the theoretical and the practical significance of the 'inflationary gap' set off by the reports of the 'Commission du Bilan'?
- (6) Can you suggest any improvements you consider might be valuable to national accounts in either theory or practice?

It may be said that the enquiry met with reasonable success. There were marked signs, at least, of a growing interest in social accounting on the part of the responsible public. Out of fifty persons consulted over thirty gave answers, sometimes of considerable length and interest.

The considerations which follow are based to a large extent on material provided by the results of the enquiry: a fact, I should like to say, which in no way absolves the present writer from personal responsibility for all the opinions expressed and also for any errors which may appear in this paper.

I. THE REPORTS OF THE 'COMMISSION DU BILAN' AND THEIR IMPACT ON ECONOMIC POLICY

The main purpose of the First Report of the Commission du Bilan was to make the nature of post-war inflation quite clear and to indicate means of combating it. The method chosen was that of constructing the well-known model which aims to determine the inflationary gap between the total prospective money income and total prospective resources for the given period. The potentialities of this method were, however, limited owing to lack of adequate information both on private enterprises product and money income distribution among the different social classes. The authors of the Report had, in fact, to rely above all on data provided by the government budget. They were also forced to accept, as an approximate measure of prospective investment, the figures of the Plan Monnet with the addition of estimated figures of possible demand and supply of capital goods

in the main industrial branches. Consequently, it may be said that the Report does not constitute a true National Budget, since the latter should tend to balance *all* national resources with *all* their uses, so that a rational choice can be made between all alternative possibilities. The real significance of the Report is that, given the amount of public expenditure considered practically irreducible, the amount of investment considered indispensable, and the general trend of expectations, excluding the formation of adequate saving, the disposable income must be cut down by an amount equal to: the government deficit, plus that part of investment which cannot be covered by means that diminish income, minus the import surplus. In other words, the Report implicitly admits priority of public expenditure and investment over consumption; a point of view altogether acceptable if we take into account the circumstances in which the work of the Commission du Bilan had to be done.

The explicit supposition that there will be no speculative increase of stocks and that no dishoarding will take place during the period is a further point which lessens the practical significance of the conclusions contained in the Report.

Eventually, the failure to present a thorough study of internal credit relations (and this could have been done by introducing a special balance sheet modifications account for each sector) prevented the authors of the Report from giving sufficient emphasis to the possible increase of private investment beyond the limits foreseen. The Second Report of the 'Commission du Bilan' has remedied this omission.

The immediate result of the First Report on economic policy was the introduction of a special levy, with the option of subscription to a national loan, on certain categories of tax-payers. This was the so-called 'Prélèvement Exceptionnel de la lutte contre l'inflation', introduced by the Act of 7th January 1948. That a definite causal relation existed between the First Report and this Act was established by the enquiry made by the I.S.E.A. The First Report not only contributed to the idea of this levy but also furnished the quantitative data necessary to fix its amount (which was, however, subsequently cut down by Parliament). It also provided a general scheme for distribution of respective charges among the various categories of tax-payers.

Finally, by showing the close relationship between different sectors of the nation's economic life, the Report provided the

Government with their best argument when they were called to support the bill in Parliament.

The 'Prélèvement', first designed to provide about 150 billion francs,¹ and later reduced by Parliament, eventually produced about 85 billion. It is, however, very difficult to appreciate the economic impact of this amputation of disposable income, since at the time many other measures – such as the devaluation of the franc, the reintroduction of a free market for some foreign currencies, and the withdrawal of the 5,000-franc notes – came into effect, mixing their deflationary and inflationary consequences with the results of the 'Prélèvement'. The fact is that the retail prices, which were rising continually up till February 1948, did not increase noticeably between February and August. The wholesale prices remained virtually stable between February and May. In August 1948 the inflationary tendency resumed and did not stop until the end of the year, when the effects of the good harvest, the general downward trend of world prices and the energetic efforts of the Government (taxation, credit restrictions and economies in government expenditure) did achieve a period of stability which has continued up to date.

The limited success of the 'Prélèvement' may be partially explained by the fact that, while cutting down the disposable income, the Government did not realize at first the necessity of restricting bank credits. Consequently the unincorporated enterprises – particularly numerous in France – were able to reconstitute their working capital reduced by the levy, and to pursue speculative investment in stocks.

This omission only became evident with the Second Report of the Commission du Bilan, August 1948, which contains a thorough analysis of credit relationships and which insists on the necessity of adjusting the global volume of credits to the physical potentialities of increasing production. The credit restrictions were in fact introduced on 29th September 1948. Although we may reasonably suppose that this decision had been inspired, at least partially, by the conclusions of the Second Report, there is not sufficient evidence to describe it as a direct consequence of social accounting.

¹ The inflationary gap for the first six months of 1948 was estimated at 200 billions.

II. THE CONCLUSIONS TO BE DRAWN FROM EXPERIENCE OF SOCIAL ACCOUNTING IN FRANCE

Experience of social accounting in France – short as it has been – has brought to light at least three points worthy of attention:

(1) If it is to be really useful, the system of national accounts must completely cover the whole field of economic activity. The classical three-sectorial system, with its consolidated external and capital accounts, and with its rather superficial treatment of income distribution, is quite inadequate as a guide for economic policy. The minimum additional requirement would be to show: the distribution of income, before and after tax, by sizes of income and by social classes; the subdivision of consumption goods production in necessities and luxuries; the splitting of the capital account so as to indicate the main credit relationships and different means of investment financing.

(2) Experience in France seems to have thrown some light on the real significance of the so-called 'inflationary (or deflationary) gap'. This gap is usually defined as a difference between two aggregates, issued from an 'ex ante' evaluation of the gross national product. The first of these aggregates represents the sum of all goods and services produced during the prospective period and estimated on their initial price. The second aggregate is the sum of incomes generated by the production of these goods and services. From the first aggregate we deduct all goods and services which do not absorb any income during the period (the goods and services which are not sold against spendable incomes). From the second aggregate we deduct all parts of income which do not absorb any goods and services (gross saving and compulsory payments). Since the two aggregates are evaluated at the initial price, the gap obtained in this way is also calculated at the initial price.

This expected difference between the estimated value of incomes absorbing goods and services and the estimated value of goods and services absorbing income has a significant meaning only at the actual moment of estimation. If an adequate and immediate intervention does not adjust these two flows from the first day on which the National Budget comes into operation, the discrepancy between supply and demand produces an effect on prices, unless we suppose an absolutely effective price

control. The cumulative processes start immediately and the whole evaluation loses its quantitative meaning.

Thus the National Budget may only be considered a check on the consistency of the plans supposed to be made by different national groups at the time of the budget being established. But, even in this restrictive sense, the National Budget does not provide the 'measure' of the necessary intervention. It would only do so if all plans which were checked were the 'true' plans; that is, plans existing merely on paper and only put into execution *after* and *following* the estimates of the National Budget. In reality, the fulfilment of these plans at the time of the estimate is already in progress *before* and *during* the computation of the National Budget. Their adjustment necessitates changes in the actual behaviour of different economic units. And the plans of these units are not only linked together through the mechanical ties shown in the double-entry accounting, but also through the specific economic relations of anticipation and cumulative effects. So, if the National Budget shows any inconsistency, the removal of which would necessitate some change of partial plans, the final change cannot be calculated by a mere shift between credits and debits of social accounts. The initiated change will spread itself over the whole system according to the patterns of economic behaviour, which seem to be rather difficult to forecast.

Hence the National Budget only helps us to grasp the probable existence of maladjustments. It does indicate that some of the components of national expenditure ought to be reduced or increased. But it does not give any *measure* of the action to be undertaken.¹ We can gain some idea of *how* to reduce and *how much* to reduce only after a thorough study of the economic behaviour of all centres of decision. If, after the first day the National Budget is in operation, the reaction of economic subjects does not conform to our expectations, the quantitative indications given by the National Budget must be completely revised. The construction of reliable national budgets is not merely a question of good statistics and ingenious forms of accounting presentation. It requires above all a profound knowledge of economics and psychology. It may only be hoped that prolonged practice of national budgeting and continual and

¹ My criticism is mainly directed against the so-called 'prognosis budgets' and does not apply to the same extent to 'programme budgets', which are based on the supposition that all strategic variables are determined by the planning authority.

thorough comparisons between the forecasts and their realizations will contribute to a gradual promotion of this knowledge.

(3) In spite of the method's general limitation, and all the particular limitations of its application in France, our experience of the use of social accounting has revealed at least one unquestionable advantage. It has given those who manage national affairs a general idea of the close interdependency of all economic factors. Simple though the picture designed by the Reports of the Commission du Bilan was, it none the less succeeded in producing a consistent system of figures, not one of which could possibly be changed without changing its other components. The theories of 'neutral' taxes, 'neutral' budget and 'neutral' money, which still had some support in France, received a decisive blow.

THE RECENT USE OF SOCIAL ACCOUNTING IN THE UNITED KINGDOM¹

by E. F. Jackson

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I. THE PUBLISHED NATIONAL ACCOUNTS OF PAST YEARS

THE first national accounts of the United Kingdom were presented to Parliament in 1941. Judged by present-day standards they were unambitiously conceived. They consisted of three two-sided tables in the now familiar form: one showed breakdowns of national income and not national expenditure; the other two presented a revenue account of households and a combined capital account (or, as some would now prefer to say, resting account) so arranged as to focus attention on the central government's borrowing. The accounts did not, of course, form an articulated system.

Two things were especially remarkable about the estimates in this Parliamentary paper: they related to a year that had ended only three months before, and their form of presentation had been deliberately designed to help the Government in formulating its war-time financial policy. It was also then thought remarkable that the Government, having had the estimates made, should have published them. It is common knowledge that it was Lord Keynes who both investigated the calculations and urged their immediate publication.

The speed with which the estimates were made was possible only because of an exceptionally bold use of estimates obtained as residues. Both domestic investment (or, rather, disinvestment) and personal saving were obtained as residues.

Since then a similar paper has been submitted to Parliament each year before the Budget. The concepts of income and expenditure used in the latest of these papers² differ only in detail from those used in the pioneer document. Latterly, attention has perhaps been diverted from the net national income to the gross national product. This is because of dissatisfaction with the only

¹ I must emphasize that, although I am an official, nothing in this paper must be taken as expressing the views of the Central Statistical Office or any other part of H.M. Government.

² *National Income and Expenditure, 1946 to 1948* (H.M.S.O., April 1949, Cmd 7649).

available figures of depreciation allowances. But the British figures have throughout remained faithful to the principle of valuation at factor cost, although it has long been recognized that in conditions where monopoly gains and quasi-rents may be earned in varying degree by all factors of production the concept of national income at factor cost, as conventionally measured, does not have an unequivocal meaning.

With the continuous increase in the quantity and improvement in the quality of statistical source material and with greater experience in the use of this material it has been possible to make finer breakdowns of the global aggregates of national accounting. As a result, this year's paper¹ contains for the first time a completely articulated system of accounts for the pre-war year 1938 and the three latest post-war years. These accounts now form the backbone of the paper. They are six in number. (With less than six it would not have been possible to have complete articulation without sacrificing some distinction important for policy purposes: e.g. the distinction between personal and business saving. More than six the data did not permit – at least to official statisticians bound to be more cautious than their freelance colleagues outside the machine.) They are:

- (a) a consolidated operating account of enterprises (including the trading branches of public authorities);
- (b) an appropriation account of corporate enterprises;
- (c) a revenue account of households;
- (d) a revenue account of public authorities (local and central government);

(These last two accounts can be regarded as, in Mr. Stone's terminology, apart from all differences of definitions – consolidations of the operating and appropriation accounts of households and public collective providers.)

- (e) a combined capital account (or resting account);
- (f) an account recording the current transactions of the British economy with the rest of the world.

Some of the items in these accounts are broken down in some detail in other tables; the expenditure of consumers (households) is classified under 42 heads, mixed incomes (the profits of unincorporated enterprises) are subdivided into three groups, direct

¹ *National Income and Expenditure, 1946 to 1948* (H.M.S.O., April 1949, Cmd. 7649)

taxes are allocated between different types of income and indirect taxes and subsidies between different types of expenditure, personal incomes are classified by size of income; the consolidation of the revenue account of public authorities is removed and separate accounts, in some detail, shown for the three different types of public authority; the relation of the central government's revenue account to the conventional cash accounts of the Exchequer is set out.

The main remaining defects of the accounts are these:

(1) Personal saving is still measured as a residue; no direct estimate of either total personal saving or the saving of particular income groups is available. Nothing is known of the forms in which different groups of transactors (e.g. households and enterprises) hold their accumulated savings. As a result, not only is the figure shown for personal saving highly suspect, but the combined capital account is a highly compressed statement which short-circuits altogether the flow of funds through different types of financial intermediary.

(2) The composition of the gross capital formation is still uncertain; in particular, the estimates of changes in inventories are shaky.

(3) No reliable estimates of the amount of income or gross product generated in different industries are available. As a consequence, we can show only a consolidated operating account of enterprises.

(4) The estimates of the profits of enterprises are not purified of all that the economist would regard as capital gains or losses (through inaccurate provision for depreciation and through revaluation of inventories).

(5) Except in the case of consumers' expenditure it has not so far been possible to deflate the expenditure figures so as to eliminate the effect of price changes. As a result we are in some doubt as to year to year changes in real income. Rough calculations made from the expenditure side have so far given results appreciably different from equally rough calculations from the side of real output.

(6) Nothing is known of the expenditure patterns of different income groups, or, as a consequence, of the incidence of indirect taxation on different classes. This gap could only be filled by continuing family budget enquiries.

(7) No breakdown is available of public authorities' purchases from enterprises. This is, of course, due to the fact that the Government's accounts are kept on what is sometimes called an 'objective' basis. For Parliamentary purposes it is essential to know how much of the Government's spending is the responsibility of a particular Department, but it is not essential to know how much the Government as a whole is spending on the products of any particular industry.

(8) Some of the estimates in the balance of payments are, because of the methods of estimation used, too 'net' to fit ideally into a system of articulated accounts. This results in the totals on the operating account of enterprises being too low on both sides. Moreover, the balance of payments used for operational purposes in the United Kingdom is essentially a cash account: its use in the national accounts therefore necessitates tiresome adjustments to the other accounts which are on an accruals basis.

(9) Some of the estimates actually made and published rest on a quite inadequate statistical foundation. This is particularly true of the household expenditures on consumer services.

(10) The estimates come from many diverse sources. With the best will in the world it is impossible always to be satisfied that they are logically consistent with one another. As an example of this one might mention our estimates of capital formation. They are made mainly from the supply side: that is, by estimating the output of capital goods by particular industries. As long as this method is used there must always remain some doubt whether the implicit assumptions as to the borders of capital expenditure are the same as those that underlie the Inland Revenue's figures of assessable profits.

(11) The reader of the official estimates is given no guidance as to what margins of error their compilers would assign to the various estimates. It is, I think, important that something rather like the practice followed by Dr. R. C. Geary in publishing the estimates of the national income of Ireland should be adopted in this country.

(12) Only in the case of consumers' expenditure have quarterly estimates been published.¹ But for many purposes of policy, particularly in years of turning-points, a time unit of a year is too long. It would be a tremendous improvement if provisional

¹ These figures are published in the *Monthly Digest of Statistics* (H.M.S.O.).

quarterly accounts could be published, say, two months after the end of each quarter, even at the expense of some (inevitable) loss of accuracy.

II. THE USES OF NATIONAL ACCOUNTING AND NATIONAL BUDGETING

It is unnecessary to enlarge on the value to clear thinking of the systematic presentation in a logical system of accounts of the past transactions of an economy. In this country it can, I think, be said that the level of contemporary comment on economic and financial policy is fairly high. For this the regular publication of such accounts by recent Governments is partly responsible. It is now much less easy for enthusiasts for this or that course of action to overlook the fact that the effects of their pet policies cannot be isolated to one sector of the economy. An advocate of a cut in public authorities' current expenditure of £x million can, by looking at the accounts, see what proportionate increase in expenditures (whether by foreigners on exports, by households on consumption or by enterprises and public authorities on capital formation) it would permit. And if outside comment is made more coherent it is natural to suppose that the same must happen inside the government machine. To what extent that is or is not so, it is not I think for me, as an official, to judge. But there would be general agreement among economists in this country that the habit of looking at economic questions in their general context in quantitative terms has spread in government circles in the last ten years.

The indirect effects on policies of this method of classifying economic data are therefore probably considerable even when it is applied to the data of the past. But it is only when the method is applied to estimates of the future that it can have its full impact on the policy-maker.

Before I refer directly to the British experience in this direction perhaps some general remarks on model-building and its uses will not be out of place.

First, one must obviously distinguish between models composed of forecasts and those where the model-builder has started out with some prior knowledge of the plans of some important transactor, such as the Government.

Second, models may be either 'complete' or 'incomplete'. By a complete model I mean one which satisfies the condition that

must be satisfied by the national accounts of a past period: namely, that all the accounts in it add up. In an incomplete model this condition is not satisfied. The emergence from his calculations of an incomplete model implies, of course, that the model-builder has made inconsistent assumptions. A business analyst advising a private firm operating in a *laissez-faire* economy will complete his model by varying his original assumption (a forecast) about, say, the size of the national income; an economist working a planned economy does not, presumably, himself complete his model: he hands it over to the policy-makers with the observation that present plans, as disclosed to him, are inconsistent and will have to be revised in one of a number of possible ways.

Third, models may relate to an accounting period relatively close to the present or to one rather remote in time. (In this context, and in present conditions, I would class a period three years hence as remote.) This distinction is important not only because the methods of estimation suitable for constructing a short-period model may be quite different from those suitable for a long-period model, but also and mainly because the uses which the two types of exercise can serve is in my view rather different.

Official statisticians had their first experience of model-building in 1943. In that year a model (or, rather, a series of models on alternative assumptions) of the British economy in a post-war, post-transition year was constructed. Since that time a series of further long-period models have been constructed. The value of these exercises has been that both Ministers and officials concerned with detailed administration have been able to choose at what level they should set their sights for the main conventional aggregates: government expenditure, gross investment, consumption and foreign investment. It would be ridiculous to suggest that these 'targets' have made up a detailed policy: what can fairly be said, I think, is that particular decisions have been taken in the light of these long-term targets to which we are assumed to be working. In particular, the proportion of the gross national product which it has been thought proper to aim at allocating to investment was fixed after taking account of the general picture presented by such long-period surveys.

Since the war we have, in addition, each year constructed a model of the next year of account. These models have all been

based partly on governmental plans and partly on forecasts. The mixed character of the assumptions reflects the mixed character of an economy where some transactions are subject to direct governmental control (by rationing, licensing or prohibitions) and some are left to be determined by the play of market forces. The models were always, at first, incomplete. The gaps in them were then stopped by government decisions which made some of the original assumptions invalid, and lately the completed model has been published in the *Economic Surveys* for the year in question.

But whereas in the case of the incomplete long-period model the Government has had an embarrassing choice of possible ways of completing the model – by operating on any of the four expenditure aggregates either directly or through income and its distribution¹ – by contrast, in the case of short-period models the Government has only a narrow choice of alternatives. Most of the decisions have already been more or less irrevocably made, piecemeal, by the time the model is constructed, and all that a government can do at that stage to complete the model (to close the gaps) is, I would suggest, to adapt its fiscal and financial policy. Short-period models, in other words, are useful only in guiding a government's fiscal policy. If one forgets this, one is likely to make exaggerated claims for the usefulness of the social accounting technique as applied to estimates of the future. (It is surely no coincidence that those economists who make the boldest claims for this technique are also, in this country at any rate, those who equate economic policy with fiscal policy.)

My point will perhaps become clearer if I illustrate it by describing, rather laboriously, the way in which the short-period models of the British economy (the unpublished incomplete ones posing questions for ministerial decision) have in fact been constructed.

¹ I do not mean to imply that long-period models are useful only in exposing inflationary or deflationary gaps. A government making a decision on the appropriate size of a particular industry would be greatly helped by having before it a rather complicated model showing the main inter-industry flows as well as the usual aggregates. In the United Kingdom we certainly hope to develop long-period models similar to Leontief's input-output tables for the American economy of 1929 and 1939, when we have complete data from our first post-war census of production.

III. THE METHODS USED IN MODEL-BUILDING IN THE UNITED KINGDOM

The first practical questions to be decided at the outset of all model-building are these: What level of prices shall be used? And at what point in the system of flows shall the initial estimates be made? The British practice has been to work with existing prices and existing tax rates, and to start the process of estimating with the balance of payments.

Exports to each currency area have first been estimated. (This implies making prior assumptions about the distribution of the labour force and the state of foreign demand for British products. It also implies, strictly, a question-begging assumption about the level of imports of raw materials.) To the total of exports there has then been added an estimate of net invisible receipts from abroad, and from the sum of these two items there has been deducted the positive foreign investment to which we are committed. The resulting difference is clearly equal to the sum of imports and foreign disinvestment. A view then has to be taken as to how much foreign disinvestment can be financed. This determines the level of imports.

The decision how to allocate these imports between food, raw materials and manufactured goods has, in post-war Britain, been essentially a 'strategic' decision, to which no close economic calculus can be applied. In the absence of convertibility, of course, the number of degrees of freedom of decision is (fortunately for the planner) considerably reduced. The existence of long-term contracts with particular countries reduces the number still further. In deciding on the allocation of the sums not, as it were, earmarked in this way, the factors to be balanced against one another are, of course, the level of home consumption and stocks of particular foods and the desirability of having a flow of raw materials sufficient to keep industry going without hold-ups. (In a sense, as I pointed out above, some assumption about imports of raw materials has to be made when estimating exports.)

To calculate the gross national product it is necessary to make assumptions about the level of employment, the industrial distribution of the labour force, the productivity of labour (by which I mean, in this context, the value at factor cost of the output – before deduction of provision for depreciation – of goods and services per man-year of employment) and the level of incomes from dwelling-houses and investments abroad, to

which labour makes no contribution. (These assumptions are obviously not completely independent: the level and composition of imports is one of the determining factors of total employment as well as of the industrial distribution and productivity of the labour force. Similarly, both the total level of employment and its industrial distribution determine in part productivity.)

To the gross national product so obtained is added an estimate of the amount of transfer incomes and debt interest that will be paid by the government and other public authorities to households and enterprises. The estimation of this sum is not difficult: the number of pensioners and sick people is fairly accurately known, the amount to be paid in unemployment benefit and assistance is a function of the number of unemployed assumed in estimating gross national product, rates and conditions of social security benefits are known, the amount of debt interest is insensitive over short periods (in peace-time) to changes in government borrowing.

A small part of this sum (gross national product *plus* transfer incomes) will go direct to public authorities as income from property. A part of the remainder will reach the government as direct taxes on income. To estimate receipts from direct taxes, it is necessary to make some allocation between different types of income, which will bear tax at different rates. The minimum necessary allocation is between provision for depreciation, wages and salaries, company profits (distinguishing between distributed profits and additions to reserves) and other property incomes. Given existing standard rates of tax and a hunch as to the effective average rate of tax on wages and salaries, the receipts of direct taxes can now be calculated.

The chanciest estimate of all still has to be made: the propensity to save out of personal income. Once this has been determined the consumption expenditure of households emerges as a residual.¹ From this the yield of indirect taxes (at existing rates) and the amount of subsidies required to maintain retail prices unchanged can be calculated. This, of course, necessitates some breakdown of consumption, but fortunately, in the United Kingdom, no very thorough one. (This is because indirect taxes and subsidies are both concentrated on a rather narrow range of commodities.)

¹ In fact, the calculation has in the United Kingdom sometimes been made the other way round, so that saving has emerged as a residual.

It remains to write down the two remaining items of the national expenditure: government expenditure and capital formation. The one emerges from the Parliamentary Estimates which Departments prepare for the Treasury each year (and the similar Estimates of Local Authorities). The other emerges as a datum given by a prior 'strategic' decision by the Government. I would suggest that this is likely to be true of all 'semi-planned' economies: different European countries may have different ways (by interest rates, direct controls, etc.) of allocating this total between its component parts, but the total is, in any economy not exclusively *laissez-faire*, something that is fixed independently and in the last result arbitrarily.¹ There are no rules to determine it: a government must take a definite decision itself.

Now all the items of the revenue account of public authorities are there – except one, and that one, public authorities' saving (in the case of the central government, the true surplus (or deficit) on current account), can be obtained by difference.

Only by a miracle will the sum of this surplus (or deficit), undistributed profits and private saving be even approximately equal to investment. It is at this point that the statistician retires and the public financier takes over. But you will see that it is the public financier and not the planner of import or investment programmes who takes over. The decisions of the latter have in general already been taken.

IV. SOME WEAKNESSES OF THE BRITISH MODELS

The first main criticism that could justly be made of the British 'national budgets' relates to the price assumptions made. In principle, all the calculations of incomes and expenditures have been made in terms of the prices ruling at the end of the previous year. But there is one exception to this. In calculating receipts from direct taxes on wages and salaries, we have in fact always tried to take a realistic view of the probable level of taxable income. This has not unnaturally sometimes differed appreciably from the level of income implied by the general assumption of unchanged factor prices. The inconsistency is not great; but it is undoubtedly there.

Second, it is sometimes objected that the estimates of personal saving available in the United Kingdom are so subject to errors

¹ This is not, of course, to say that the decision may not have been taken in the light of an earlier long-term survey.

of estimation that it is ludicrous to base important decisions on them. Thus, Mr. C. F. Carter¹ recently commented that 'there was some danger of the "nose" for good statistics losing its sense of smell. This seemed to show itself in the statistics of savings which were the foundations of this year's Budget, and which, in fact, were extremely bad statistics.' I would not disagree with this.

What has happened in the United Kingdom is that a method of estimation that was, though not of course ideal, adequate during the war and immediately afterwards, has continued to be applied in conditions to which it is quite unsuitable. In war-time the interest focused on the Government's borrowing needs and it was comparatively unimportant whether these were met out of current saving or current domestic disinvestment. (Indeed, in the first White Paper on National Income, personal saving and domestic disinvestment were bracketed together in the capital account.) Immediately after the war no very accurate figures were needed to reveal the existence of a large inflationary gap. Nowadays, an *ex ante* gap of £100 million is an important gap. But such a gap is well within the margin of error of the estimates of either personal income or personal expenditure.

It is in the measurement of saving, therefore, that the most urgent improvements are needed. The problem needs, probably, to be approached from two sides simultaneously: the analysis of the statistics of financial intermediaries (but before the statistics can be analysed they have to be corrected) and the sampling of family budgets. In neither field have we in this country had much experience. In the meantime important decisions will have to be based on bad evidence, which is, however (*pace* Lundberg), better than no evidence.

There are other soft spots in the British estimates for future years. Some are due to the inadequacy of data which I touched on in the first section of this paper. I will give only one example. Part of our investment planning is done partly in terms of quantities *times* prices, partly in terms of money expenditures. But as we have no adequate indices of the prices of capital goods it is impossible to be certain that the price assumptions implicit in this second block of investment are consistent with those made in calculating income.

¹ *Journal of the Royal Statistical Society*, Series A, Vol. CXI, Part III, 1948, p. 220.

Other soft spots are due more to weaknesses of theory. Thus, we have so far shirked clearing our minds on how one can measure changes in the productivity of government employees and the employees of certain other service industries. This problem is mainly relevant if one is concerned to obtain an index of real income. But it is not without importance even in calculations of money income. For by assuming constant wages per unit of *output* in industries where a conventional measure of productivity increase is available and constant wages per unit of *effort* (i.e. per man-year) in industries where no such measure is at hand, we have in effect assumed that workers in the latter group of industries will be content to see their money incomes fall behind those of workers in other industries. Which may not be a particularly plausible assumption, at least in the long run.

Lastly even where theory and statistics are satisfactory there is a grave danger of inconsistencies arising. This is partly, of course, owing to the large number of assumptions that have to be made, but it is accentuated by the fact that, if the best advice is to be obtained, they have to be made by an almost equally large number of people. The compilation of an economic survey by government departments is a very different game from that played by the academic economist working out a model as an individual. Moreover, it necessarily takes time. This means that the estimates will not be made simultaneously. Later evidence will be available when some are made than could be so in the case of others.

It is possible that I am here overemphasizing the difficulties of a transitional stage. We are living today at a time when the refined techniques of demand analysis can hardly be used for short-period projections because the earlier periods for which income and price elasticities of demand have been calculated were, on the whole, periods when direct limitations on particular demands were non-existent. It may be that, as we gradually relax direct controls on particular demands and accumulate up-to-date data on the patterns of demand of different income groups, the individual economist using modern techniques of analysis will come back into his own and it will be possible to make projections by soundly based calculations of propensities. But until then the problems of model-building will continue to be strikingly unlike the picture given in most of the literature on the subject.

RECENT EXPERIENCES IN THE USE OF SOCIAL ACCOUNTING IN THE NETHERLANDS

by G. Stuvcl.

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I. INTRODUCTION

SOCIAL accounting got started in the Netherlands during the war. This was mainly due to Ed. van Cleeff and Professor Derksen. It fell to the latter, as a member of the staff of the Netherlands Central Bureau of Statistics (NCBS), to construct a provisional set of national accounts and to prepare preliminary estimates for the 1938 accounts.¹ After the war the NCBS resumed its work on social accounting, and as a first result we have now available the 1946 accounts and some preliminary estimates for 1947.²

The NCBS, however, is not the only institute in the Netherlands which applies the social accounting approach in its work. The same is done by the Netherlands Central Planning Bureau (NCPB), a government office, set up immediately after the war under the directorship of Professor Tinbergen. Thanks to its director, central economic planning in the Netherlands has been subjected right from the start to the discipline of social accounting.³ So most probably Holland has been not only the first country in the world to have a set of national accounts with real figures in it, but also the first country where the central economic plan was presented in the form of a national budget.

The use of the social accounting approach in university teaching should also be mentioned here. In this connection it is worth noting that last year Professor Koopmans, of the Rotterdam School of Economics, gave a year's course of lectures on the national budget, the national accounts and related subjects.

My own experience with social accounting springs mainly from its use for planning purposes. I shall therefore concentrate in this paper on this special use. Even so, I shall have to confine myself here to a treatment in broad terms of the main issues

¹ Professor J. B. D. Derksen, *A System of National Book-keeping, illustrated by the experience of the Netherlands economy* (National Institute of Economic and Social Research, Occasional Papers X, Cambridge University Press, 1946).

² National Accounts of the Netherlands, 1946 and 1947 (NCBS Special Statistical Communications, April 1949, No. 4,001; mimeographed).

³ Cf. First Memorandum on the Central Economic Plan 1946 and National Budget 1947 (NCPB, The Hague, September 1946).

only, in order to keep the scope of this paper within reasonable limits.

II. THE SOCIAL ACCOUNTING FRAMEWORK

Recently it has been suggested that the National Budget, as published in the Minister of Finance's Budget Statement,¹ may be simplified considerably by substituting so-called income accounts and product accounts for the operating accounts of different sectors.² The meaning of this suggestion will become clear as the argument proceeds.

The basic structure of the proposed set of accounts consists of *four types of account*, namely:

- (1) an income account;
- (2) a product account;
- (3) a foreign account;
- (4) a savings-investment account or capital account.

The nature of these accounts corresponds to what econometricians call the *balance equations* of a system of equations describing the national economy.

These accounts can be set up

- (a) for the economy as a whole;
- (b) for each of the main sectors of the economy, namely:
 - (1) personal sector (family households, etc.),
 - (2) collective income recipients' sector (life insurance companies, pension funds, etc.),
 - (3) business sector (enterprises),
 - (4) public authority sector (State, municipalities, etc.);
- (c) for each of the sub-sectors of the economy; the personal sector, for instance, may be split into two sectors, the labour class and the non-labourers or, if the problem tackled requires such, into family households, single persons and collective households (e.g. asylums, prisons); most important in this field, however, is the subdivision of the business sector into separate branches of industry.³

¹ Budget of the Netherlands Economy for 1949 and comparable figures for 1948 (NCPB, The Hague, June 1949).

² G. Stuvél, 'Analyse van een Nationaal Budget', in *De Economist*, 97 (1949), pp. 225-56, and G. Stuvél, 'Structuur van het Nationaal Budget', in *Economisch-Statistische Berichten*, February 1949, pp. 132-35.

³ For a detailed statement on the accounts for separate branches of industry see J. Lips, 'The Business Sector in the National Budget of the Netherlands' (*Cahiers du Congrès International de Comptabilité, Paris, 1948, Première section: Comptabilité du Revenu National, Supplément 1*).

The criterion for grouping is, broadly speaking, the similarity in the reactions of the individual constituents of the group. How far one should go with the grouping procedure depends largely on the amount of detailed information required for the problem studied and the kind of reactions which play their part in the problem concerned.

Now let us have a look at the *purely national accounts* of the Dutch National Budget for 1949 to see what items appear in each of the accounts mentioned above.

TABLE 1
Concise National Budget of the Netherlands for 1949
(in billions of guilders)¹

NATIONAL INCOME ACCOUNT			
<i>Charges</i>		<i>Proceeds</i>	
National consumption (C)	11.92	National income at market prices (Y)	13.08
Net national savings (S _n)	1.16		
	<u>13.08</u>		<u>13.08</u>
NATIONAL PRODUCT ACCOUNT			
<i>Charges</i>		<i>Proceeds</i>	
Net national product at market prices (Y)	13.08	National consumption (C)	11.92
Imports of goods and services (U _i)	5.71	Net capital formation (I)	2.02
	<u>18.79</u>	Exports of goods and services (U _e)	4.85
			<u>18.79</u>
OUTSIDE WORLD ACCOUNT			
<i>Debit</i>		<i>Credit</i>	
Netherlands exports of goods and services (U _e)	4.85	Netherlands imports of goods and services (U _i)	5.71
Netherlands net capital imports (S _f)	0.86		
	<u>5.71</u>		<u>5.71</u>
CHANGES IN THE NATIONAL BALANCE SHEET			
<i>Debit</i>		<i>Credit</i>	
Net capital formation (I)	2.02	Net national savings (S _n)	1.16
		Net capital imports -- foreign savings (S _f)	0.86
	<u>2.02</u>		<u>2.02</u>

¹ Premiums from Indonesia going to collective income recipients (f 0.02 mld.) in the published National Budget for 1949 are here considered as a capital transfer and therefore left out of account.

This set of accounts proves to fit in nicely with the Keynesian static *system of equations* from the *General Theory of Employment, Interest and Money*:

- (1) income account: $C + S^n = Y$
- (2) product account: $Y + U^i = C + I + U^e$
- (3) foreign account: $U^e + S^f = U^i$
- (4) capital account: $I - S^n + S^f = S$

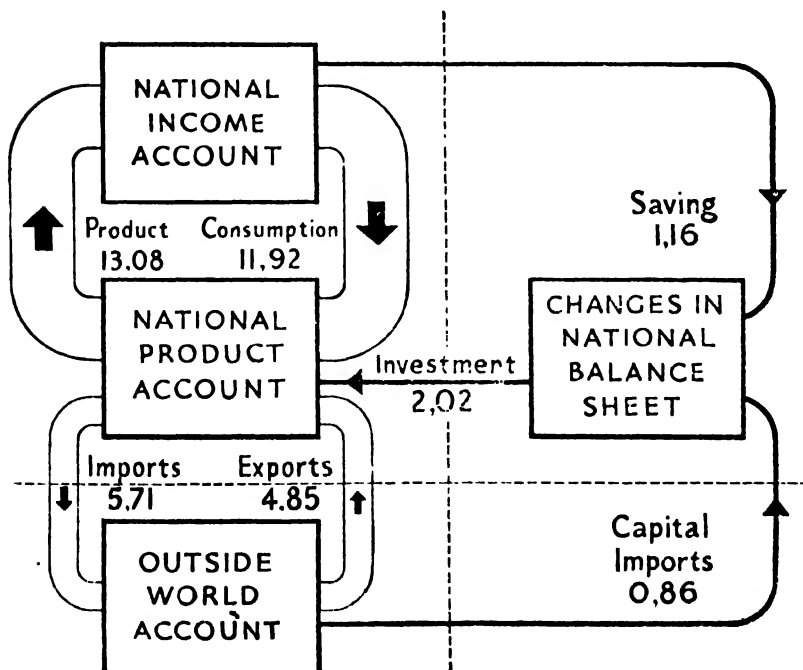
One of these equations is dependent on the other three. In most systems of equations it is the second equation that is left out. Its dependence on the other three may be shown as follows:

$$Y + U^i - C + S^n + S^f + U^e - C + I + U^e$$

The above set of purely national accounts may be put together in a neat little graph which looks as follows:

The Netherlands Economy, 1949

Concise National Budget
(in billions of guilders)



Still another way of presenting the above set of accounts is the following:

TABLE 2
Concise Netherlands National Budget, 1949
'Reduced Form'
(in billions of guilders)

From:	To:				
	Income account	Product account	Foreign account	Capital account	Total
Income account . . .	X	11.92	--	1.16	13.08
Product account . . .	13.08	X	5.71	---	18.79
Foreign account . . .	---	4.85	X	0.86	5.71
Capital account . . .	---	2.02	-	X	2.02
Total	13.08	18.79	5.71	2.02	39.60

TABLE 3
Concise Netherlands National Budget, 1949
Combined Accounts
(in billions of guilders)

From:	To:				
	Income account	Product account	Foreign account	Capital account	Total
Income account . . .	4.01	11.92	--	1.82	17.75
Product account . . .	13.08	1.38	5.71	1.92	22.09
Foreign account . . .	---	4.85	X	0.86	5.71
Capital account . . .	0.66	3.94	---	?	4.60
Total	17.75	22.09	5.71	4.60	50.15

The meaning of the items in the respective squares is indicated in Table 4 on the next page.

TABLE 4

Scheme of the Items in the National Accounts

From:	To:			
	Income account	Product account	Foreign account	Capital account
Income account	Income transfer	Consumption		Saving
Product account	Remuneration of factors of production	Product transfer	Imports	Depreciation allowances
Foreign account		Exports		Capital imports
Capital account	Dissaving	Gross capital formation	Capital exports	Capital transfer

Table 2, which corresponds to Table 1, may be derived from Table 3: (1) by dropping the transfer items which appear on both sides of the national accounts with the same value, and (2) by balancing gross capital formation and depreciation allowances and also saving and dissaving. As a matter of fact, the capital imports item is equally the result of balancing capital imports and capital exports, but unfortunately the published Dutch National Budget only supplies information on the balance of the two in its consolidated¹ foreign or outside world account. Likewise, the capital transfer figure had to be omitted, as only the consolidated capital account, also called 'Changes in the national balance sheet', has been published. Furthermore, the system does not allow for any connections between the foreign account and the income account(s) (cf. blanks in Table 4); gifts to and from abroad are included in the net capital imports figure; income from abroad is considered as payment for services to the outside world and, as such, included under exports; and consumption abroad is considered as imports of goods and services.

The tables shown here only refer to the national economy as

¹ See for this concept Richard Stone, 'Definition and Measurement of the National Income and Related Totals' (League of Nations, Studies and Reports on Statistical Methods No. 7, United Nations, Geneva, 1947), p. 27, note 1.

a whole. As soon, however, as we study the picture of the economy in more detail, by distinguishing separate sectors, as indicated above, the tables will have to be extended so as to include the income accounts, etc., for each of the sectors.

The combined¹ accounts in Table 3 are obtained by summation of such separate accounts for the main sectors of the economy. The items in the combined national product account, for instance, consist of the totals of the corresponding items in the product accounts for the business sector and the public authority sector (product accounts are only needed for the production sectors of the economy!). In the process of consolidation the transfer items drop out as soon as we reach the stage of purely national accounts, because for the nation as a whole the total incoming and outgoing transfers of individual households must *ex definitione* be equal. For separate sectors (groups of individual households), however, they will show a balance, generally speaking.

It would carry me too far to discuss all the implications of the more detailed system of social accounts of which the basic structure has been explained herewith. However, one further remark should be made to enable the reader to link the published Dutch National Budget with the system that has been dealt with in the previous paragraphs of this section. It is just as easy to consolidate different types of accounts for one sector as it is to consolidate accounts of the same type for different sectors of the economy. If we thus combine the income and product accounts per sector, we shall find the operating accounts as shown in the published Dutch National Budget, in which the transactions between the two accounts of the one sector (notably remunerations of factors of production which are retained by the business sector, and the consumption of the public authority sector in so far as this consumption is derived from services produced in this sector itself) drop out. Furthermore, it should be added that at present the NCPB is considering whether or not such capital transfers, which imply an increase or decrease of the sector's wealth, should be separated from the capital transfers which only alter the composition of the sector's wealth without changing it. If this distinction is introduced, and the first category of capital transfers is combined with the operating

¹ See note 8 on p. 6.

account items, then the nature of this account, too, will be changed. It will then become an account of charges against proceeds.

III. THE USE OF THE SOCIAL ACCOUNTS FOR CENTRAL ECONOMIC PLANNING: THE COMMODITY PLAN

It is the central economic planner's task to co-ordinate the plans of the various economic Ministries. This *co-ordination* usually implies a certain amount of alteration in the Ministries' plans, for the whole of the economic plan should not only fit in with the broad aims of the Government's policy, but should also be such that it can stand the tests of consistency and harmony.

In so far as consistency is concerned, the social accounting system provides the central economic planner with a useful instrument, which can at least help him to ensure *formal consistency* between the various items in the plan. A few words about the planning procedure may further elucidate this point.

The first step in planning is usually *to confront the prospective means and needs* of the economy for the period to which the plan refers. The means are the net national product and the net capital imports, whereas the needs are consumption and net capital formation. *Ex post* means and needs will always be equal to each other. And as the plan figures are supposed to indicate what is going to happen in reality, they should in their capacity of 'anticipated *ex post* figures'¹ comply with the same condition of equality as real *ex post* figures do. The uncoordinated plans of the various Ministries, however, are more of an *ex ante* character and so the means and needs implied in them are not necessarily equal to each other. To give just one example, the Ministry of Economic Affairs may plan for an increase in the standard of living which from the point of view of the Ministry of Finance goes too far as it would require too much borrowing from abroad. Where this is the case, the central economic planner has to propose policy measures which seek a compromise between the conflicting views of the two Ministries.

To balance prospective means and needs at the planned levels is, of course, not the sole aim of central economic planning. The

¹ This expression has been coined by Professor J. G. Koopmans.

various items of the plan should also be in harmony with each other. This, however, is more a matter of the specific aims of the economic policy of the government concerned and can therefore conveniently be left out of consideration in a paper like this, which deals merely with social accounting.

What, in my view, makes the confronting of means and needs so attractive from a planning point of view is its *flexibility*. Subject to certain limitations set by the rigidities and structure of our present economic system one is free to choose the ratio between consumption and net capital formation and the level of net capital imports. Neither is there any *a priori* fixed relationship between consumption or net capital formation on the one hand and the net national product on the other. The only condition that should be fulfilled in any case is that the various items should be formally consistent with each other, that is to say that the sum total of the prospective means should equal the sum total of the needs (cf., however, section 5).

In setting up the *global commodity plan* the confronting of means and needs (in constant prices) carries us only half way. To complete the picture, the *outside world account* must be added. Here we do not have the same degree of freedom as when we make up our mind about the level of the various items in the confronting of means and needs. Once the levels of consumption and capital formation are fixed, the level of imports is also determined within narrow limits, given the structure of the economy, for this structure can only change gradually. The country's production pattern, for instance, cannot be changed overnight. Furthermore, the consumption pattern will be fixed within narrow limits once the level of consumption is fixed. And so on. It is true that rationing and price policy may influence the composition of the production pattern and of the consumption pattern, but their influence on imports is limited. However, in fixing the import level their influence, whatever it may be, should be taken into account. So given the levels of production, consumption and capital formation, and the scope of the rationing and price policy, the level of imports may be said to be fixed. Once the level of imports and the net capital imports are given the level of exports is also fixed, provided the goods available for export can be sold in the foreign markets. If they cannot be sold at planned prices, then further policy measures have to be considered so as to bring export prices down to a sufficiently com-

petitive level one way or another, or to increase home consumption, or to decrease production.

Needless to say, the procedure above described for drawing up the global commodity plan is a very much simplified picture of the actual procedure, which is based on many more considerations of an often rather complicated nature. Furthermore, the global commodity plan is only a first approach which supplies a framework for detailed planning. In the light of further considerations, which come to the surface only when the detailed plan is worked out, the general outline of the central economic plan will have to be revised to a certain extent in order to take account of all the separate factors which play their part in the whole of the economic plan.

Once the confronting of means and needs and the outside world account are fixed the whole of the concise National Budget is fixed, net national saving being the difference between the net national product and the national consumption (see income account).

In passing, it may be remarked that the confronting of means and needs is merely the result of consolidation of the national product account and the outside world account of the concise National Budget (cf. Table 1).

As regards consistency, attention should also be drawn to the fact that the social accounting approach does ensure consistency not only in the various items of the plan but also in the definitions of the concepts used, such as national product, consumption, capital formation, and so on.

IV. INDEX NUMBERS

Social accounting also gives us some useful guidance as to the correct manner for calculating *volume and price indices* for the various items of the system. Like the value figures, the underlying volume figures should be consistent with each other. That is to say, the *four balance equations* mentioned in section II should also apply to the volume indices if these are given their proper weights. Now if the volume indices are taken to be Laspeyres indices, the most convenient way of combining them with their proper weights (i.e. the values of the items concerned in the base year) is to express them as value figures at constant prices (i.e. prices in the base period). If one also bears in mind

that by definition $\text{value} = \text{volume} \times \text{price}$, which for convenience' sake can also be written as:

$$(4.1) \text{ value in plan year at planned prices} = \\ \text{value in plan year at constant prices} \times \text{price index},$$

where

$$(4.2) \text{ value in plan year at constant prices} = \\ \text{value in base year} \times \text{volume index};$$

then it turns out to be quite simple to calculate, for instance, the volume and the price index for net national product within the framework of the national product account, once the value figures for the base year and the volume targets and the price assumptions for all of the items in this account but one, namely the net national product, are known. The balance equation of the national product account renders us, firstly, the value of the net national product in the base year at base year prices; secondly, the value of the net national product in the plan year at constant, i.e. base year prices, after formula (4.2) has been applied to each of the separate items of the account for which the volume indices are known; and lastly, the value of the net national product in the plan year at planned prices, after formula (4.1) has been applied to all the items for which the price index is known. From these value figures the volume and the price index of the net national product can be calculated by means of formulae (4.2) and (4.1) respectively. This certainly is an improvement on the way in which the real national income was calculated in the past, namely through deflation of income in money terms by the cost of living index, which even if it is based on the consumption pattern of the lower income groups is not to be considered as a perfectly suitable price index for consumption.

It is perhaps interesting to point out that where the volume indices are calculated à la Laspeyres, the price indices in this system should be index numbers à la Paasche, for only then will the condition

$$\text{volume index} \times \text{price index} = \text{value index}$$

be fulfilled. This is easily proved by the following formula, which needs no further comment:

$$\text{value index} = \frac{\sum p_1 q_1}{\sum p_0 q_0}$$

$$\text{volume index à la Laspeyres} = \frac{\sum p_0 q_1}{\sum p_0 q_0}$$

$$\text{price index à la Paasche} = \frac{\sum p_1 q_1}{\sum p_0 q_1}$$

$$\text{so } \frac{\sum p_0 q_1}{\sum p_0 q_0} \cdot \frac{\sum p_1 q_1}{\sum p_0 q_1} = \frac{\sum p_1 q_1}{\sum p_0 q_0}$$

This procedure of breaking down the value figure into a price and a value component can in principle be applied to the whole of the national budget or the national accounts, no matter how detailed they are. Only for certain transfer items such a procedure is rather artificial.

With regard to the indices for the national product a few further remarks may perhaps be made. Firstly, the price index obtained in the manner described above is apparently the 'market price' index. In order to calculate the index for the factor costs, 'cost-raising taxes minus subsidies' have to be subtracted from the value figures for the base year and the plan year, as a consequence of which they will also be excluded from the value figure for the plan year at constant prices. This subtraction changes both the volume index and the price index. Secondly, if one wants to know the price and volume index for the gross national product, then depreciation allowances have to be added to the net national product. The price index of these depreciation allowances ought to be the same as the price index for the net capital formation, for depreciation allowances are calculated on the basis of replacement costs. It should be noticed, furthermore, that the volume index for the gross national product is not identical with the weighted average of the production indices for all the various branches of economic activity (not even if the weights are based on the value added in each branch). The difference arises from the fact that the separate production indices do not refer to the sum of value added and depreciation allowances only, but to production inclusive of raw materials (imported as well as home produced; double counting is caused by commodity transfers between different branches of industry). Lastly, if one is interested in the national product of enterprises only, then the calculation of the index numbers for

volume and price should be based on the product account of enterprises only, and so on.

V. STRUCTURAL RELATIONSHIPS BETWEEN THE ITEMS OF THE NATIONAL BUDGET; THE MONETARY PLAN

As was shown in sections III and IV the social accounting system may be considered to be a very useful instrument for ensuring formal consistency between the various items of the central economic plan. No doubt should be left, however, that in order to be realistic the plan should not only be consistent formally but also *materially*. To make this clear a few words should be said here about the part played by the structural relationships which connect the various items of the national accounts with each other.

Already in section III, while dealing with the commodity plan, it has been pointed out that the imports are more or less determined by certain other items of the plan, such as the levels of production, consumption and capital formation. Similarly there is a certain relation between the increase in stocks (for work in progress) and the increase in production. Such more or less *technical relationships* should not be overlooked by the central economic planner, otherwise his plan might easily become unrealistic.

Furthermore – and this is very important and at the same time very difficult – the planner should take due account of the expected *behaviour of the economic subjects* in their capacity of producers, consumers and investors. The importance of this point emerges from the fact that once the government's policy is set, the realization of the plan largely depends upon the reactions of the individuals who together form the community for which the plan is designed. However, the difficulty which confronts the planner constantly is that we are not very well informed about these reactions, notwithstanding the vast amount of work done by econometricians in the last two decades. To a certain extent the planner has therefore to rely upon his common sense while dealing with these problems.

One of the main problems for the planner in this field is to see to it *that the purchasing power comes into the right hands*. The consumers' income should be sufficient to realize the consumption plan, profits should be high enough to make producers

realize the production plan and to induce them to bring about the amount of capital formation required under the investment programme, and so on. Tax policy, wage and price policy, public works policy, and so forth, are forceful means to bring about this *material consistency* between the various items of the plan, and so we find that many of the central economic planner's policy recommendations are in this field.

Another important problem in the same field is the problem of export *prices*, which has been mentioned already in section III. Export prices should be sufficiently competitive to ensure that the quantities of goods available for export can be disposed of in the foreign markets to which they are to be sold. Here, again, the planner has to make certain policy recommendations should his analysis show that difficulties are to be expected if no measures are taken.

At present the NCPB is engaged in designing a simple system of equations containing the most fundamental structural relationships. As soon as this system of equations is ready it will be possible to take due account of these relationships in a more straightforward manner than we have been able to do so far.

To conclude, I should like to introduce a set of accounts, which has already been in use at the NCPB for a long time and which is especially designed as an *instrument for analysing the monetary situation* (cf. Table 5).

These accounts confront for each of the main sectors the financing charges and financing proceeds. If consolidated for the whole of the economy they render the national capital account, also called 'Changes in the national balance sheet' (cf. Table 1), in which all the transfer items drop out.

From each of these accounts it can be seen to what extent each of the main sectors of the economy will have to accumulate or to draw on its liquid reserves if the economic plan is going to be realized in practice, whereas from the account for the 'Banking sector' it can be seen to what extent money creation may be expected to take place.

The importance of this type of account is that once estimates have been made for all the items they may disclose certain inconsistencies, such as impossible dishoarding in the personal sector or accumulation of liquid reserves in the hands of collective income recipients to such an extent that the financing of

the investment programme will be endangered if no specific measures are taken to counter these difficulties.

The accounts, which speak for themselves, are reproduced at the end of this paper.

VI. CONCLUDING REMARKS

In the foregoing I have only been able to deal briefly and in broad terms with some of the recent experiences in the use of social accounting for planning purposes in the Netherlands. I have stressed particularly the limitations of the social accounting approach, for, as I see it, the use of social accounting can only guarantee that a plan is formally consistent. This, however, does not mean that I underrate the great value of social accounting for economic planning. Far from it. But I should like to emphasize the point that to get more fruitful results from our work we should now concentrate on establishing the link between the balance (and definitional) equations of the system of social accounts and the structural relationships as we know them from the econometric systems of equations for describing the working of the mechanism of the national economy. A necessary condition for establishing this link is that we are no longer satisfied with national accounts giving value figures only. The first step must be to break down these value figures into their respective volume and price components.

TABLE 5

Scheme of Capital Accounts for Separate Sectors of the Economy

Financing charges

Financing proceeds

1. PERSONAL SECTOR

Item	Counter item	Description	Amount	Item	Counter item	Description	Amount
C 151	C 272	Capital payments to collective income recipients		C 171		Saving	
C 152	C 373	Net credits to business sector		C 172	C 251	Capital receipts from collective income recipients	
C 153	C 472	Credits to public authorities		C 173	C 452	Debt amortization from public authorities	
		Payments to public authorities:		C 174	C 453	War damage receipts from public authorities	
C 154	C 473	(a) Capital levies		C 175	C 551	Proceeds of liquidation of assets from outside world	
C 155	C 474	(b) Tax arrears		C 176	C 361	Decrease of liquid reserves	
C 156	C 475	(c) Death duties					
C 157	C 381	Increase in cash balances for transaction motive					
		Total				Total	

2. COLLECTIVE INCOME RECIPIENTS SECTOR

Item	Counter item	Description	Amount	Item	Counter item	Description	Amount
C 251	C 172	Capital payments to personal sector		C 271		Saving	
C 252	C 374	Credits to business sector		C 272	C 151	Capital receipts from personal sector	
C 253	C 476	Credits to public authorities		C 273	C 454	Debt amortization from public authorities	
		Total				Total	

3a. BUSINESS SECTOR

Item	Counter item	Description	Amount	Item	Counter item	Description	Amount
C 351		Gross capital formation		C 371		Saving	
C 352	C 477	Payments to public authorities:		C 372		Depreciation allowances	
C 353	C 478	(a) Capital levies		C 373	C 152	Credits from personal sector	
C 354	C 382	(b) Tax arrears		C 374	C 252	Credits from collective income recipients	
		Increase in cash balances for trans- active motive		C 375	C 455	Credits from public authorities	
				C 376	C 456	War damage receipts from public authorities	
				C 377	C 552	Net credits from outside world	
				C 378	C 363	Bank credits	
				C 379	C 362	Decrease of liquid reserves	
		Total				Total	

3b. BANKING SECTOR

Item	Counter item	Description	Amount	Item	Counter item	Description	Amount
C 361	C 176	Decrease of liquid reserves of per- sonal sector		C 381	C 157	Increase in cash balances for trans- action motive of personal sector	
C 362	C 379	Decrease of liquid reserves of busi- ness sector		C 382	C 354	Increase in cash balances for trans- action motive of business sector	
C 363	C 378	Credits to business sector					
C 364	C 480	Credits to public authorities					
		Total				Total	

4. PUBLIC AUTHORITIES SECTOR

Item	Counter item	Description	Amount	Item	Counter item	Description	Amount
C 451		Gross capital formation		C 471		Depreciation allowances	
C 452	C 173	Debt amortization to personal sector		C 472	C 153	Credits from person sector	
C 453	C 174	War damage payments to personal sector				Receipts from personal sector:	
				C 473	C 154	(a) Capital levies	
C 454	C 273	Debt amortization to collective income recipients		C 474	C 155	(b) Tax arrears	
C 455	C 375	Credits to business sector		C 475	C 156	(c) Death duties	
C 456	C 376	War damage payments to business sector		C 476	C 253	Credits from collective income recipients	
C 457	C 571	Debt amortization to outside world				Receipts from business sector:	
				C 477	C 352	(a) Capital levies	
				C 478	C 353	(b) Tax arrears	
				C 479	C 553	Net credits from outside world	
				C 480	C 364	Bank credits	
		Total				Total	

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5. OUTSIDE WORLD

Item	Counter item	Description	Amount	Item	Counter item	Description	Amount
C 551	C 175	Purchases of assets: proceeds to personal sector		C 571	C 457	Debt amortization from public authorities	
C 552	C 377	Net credits to business sector		C 572		Deficit on current account in Netherlands balance of payments	
C 553	C 479	Net credits to public authorities					
		Total				Total	

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GOVERNMENT PRODUCT AND NATIONAL INCOME

by Simon Kuznets

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THIS paper deals with the problem of defining the product of government as a component of national income. It inevitably repeats some of the arguments and considerations advanced in my recent writings;¹ but adds more explicit statements and some analytical detail.

The paper falls into two parts. Part I discusses the net product of government, viewed from the approach to national income *via* final products. Part II deals with the treatment of government in the approach to national income *via* the flow of shares.

I. DEFINING THE NET PRODUCT OF GOVERNMENT

1. *The setting of the problem*

National production aggregates fall into three different classes. The first includes approximations to the net yield of a nation's economic activity. The second includes measures of the total volume of activity in which the emphasis is on various institutional groups of producers and consumers, and the purpose is to study the interrelations of these groups in the economic process. The third includes combinations of the first two approaches but with the aim on certain policy targets, a casting up of national accounts designed to show attainment of such targets in the past and either expectancies or goals for attainment in the future. For brevity's sake, the first class may be designated measures of net product; the second, measures of production (the process, not product) or of transactions; the third includes what, at least in the United States, are designated national budgets.

The discussion here is of national income as a measure of net product, an approximation to social welfare. I have no quarrel with current practices of measuring the national aggregates if

¹ See particularly: *National Product in Wartime*, National Bureau of Economic Research, New York, 1944, Part I; *National Income: A Summary of Findings*, NBER, New York, 1946, Chapter IV; 'On the Valuation of Social Income', *Economica*, February and May 1948, pp. 1-16, 116-31; 'National Income: A New Version', *Review of Economics and Statistics*, August 1948, pp. 151-79.

they are viewed as totals of production or transactions, potentially useful in analyzing the interrelations of various institutional groups of producers and transactors. Nor is there any quarrel with the current practices of compiling national budgets for policy purposes. With particular relevance to the government sector, I can easily see the advantage of gauging it by the total volume of commodities and services purchased, with due attention to (although not inclusion of) transfer flows. But attempts to justify the current practices by claiming that they yield a *net product* in any meaningful sense of the term lead only to confusion; and serve to inhibit both students and laymen from developing measurement and analysis of national income as an approximation to net product or social welfare.

'Net product' and 'social welfare' as used here are closely related. The term 'product' conveys the idea of something positive, so that it is impossible to talk of product as a source of 'illfare'. The term 'net' implies that products are distinguished with reference to some set of goals, whose satisfaction is treated as a positive contribution. If by social welfare we mean a positive contribution to some socially determined set of goals, it is clear that 'net product' is an approximation to net additions to social welfare. I don't mean to imply that national income can be an accurate measure of social welfare; but it must be viewed as an approximation to it, since any measure of *net product* is an approximation to it. And there is no need to dwell further upon the inescapable relation of the concept of 'net product' to some set of goals, since the connection is tautological. Without final goals there is no final or ultimate consumer; nor can any distinction be drawn between final and intermediate products or between net and duplicating (gross) totals.

Two general aspects of this dependence of a net product total upon some set of goals should be stressed before we deal with the problem of defining *government* net product. First, the goals are not specified in a constitution, charter, or any other basic document. They must be read into the whole set and pattern of values that govern society; and an element of arbitrariness attaches to any attempt to do so. But in considering alternative formulations of such goals, one point must be clearly kept in mind. If comparisons of economies are to be in terms of 'better off' or 'worse off', such sets of goals must be recognized and so formulated as to *transcend* differences in economic and social

organization in time and space. No comparisons are possible if the goals are so narrowly defined as to be conditioned by a highly specific set of economic and social institutions. To illustrate, if the goal is identified with money income, no sensible comparisons can be made between two periods or two places that differ in the extent to which the money mechanism involves all economic activity. The more general and *invariant* the set of goals, the greater its potential efficiency in permitting comparisons of net product magnitudes across space and time.

But a second general implication also follows: in so far as the goals transcend specific existing social and economic institutions, any measure of net product that uses them as criteria must involve a recasting and sometimes violent alteration of the data directly yielded by these institutions. The data actually observed and given directly in information on economic operations yield, at best, totals of transactions among institutions. These transactions and their institutional groupings are never a clear reflection of net final flows, viewed from the standpoint of a relatively invariant set of goals. Retail sales are not a pure measure of flow of goods to ultimate consumers, purchases of goods and services by government are far from a measure of final product, and so on. In fact, the measure of any net product is but a crude approximation. This point must be stressed because scholars responsible for preparation of national income estimates find it comforting to cling closely to the raw data yielded by the economy. But close adherence would result in a set of measures with only the fuzziest relation to any system of economic concepts that transcends the transient boundaries of a given set of economic and social institutions. Even estimates of volumes of transactions or of national budgets are impossible without considerable adjustment and purification. And while one must always ask whether the analytical 'distortion' of the raw data is justified, the inescapable need for such distortion must be faced in deriving an approximation either to net product or to any other set of concepts.

We assume that the goal of economic activity is to satisfy wants of individual consumers who are members of the nation, present and future. This is the only goal that seems to underlie the performance of a variety of economies and the only one that can be associated with the economic aspect of social welfare. If any citations of authorities are needed, it will suffice to refer to

Pigou's definition¹—emphasizing only that the association with the measuring-rod of money is stretched here to the utmost — so that the criterion has the widest validity in terms of economies with different social organizations and levels of technology.

With this criterion at hand, the final product of government activity (as distinct from its intermediate product) may be defined as (a) direct services by government to ultimate consumers plus (b) additions by government to capital stock, i.e. to the stock designed to provide services to future ultimate consumers. Questions that arise in attempts to identify these elements in practice are discussed below. Before dealing with them, we consider alternative criteria for distinguishing net product and government's contribution to it; and the several approaches used in the past, all based upon a general set of assumptions similar to those used here.

2. *Purchases not for resale (current, official approach)*

We begin with the official definition of final product, different from that suggested above, and the resulting definition of net product of government. The criterion or, as the authors prefer to designate it, 'convention' for distinguishing between final and intermediate products, was formulated recently by the scholars associated with the U.S. Department of Commerce in their reply to my review of their national income publication:

We start with the obvious fact that individuals, non-profit institutions serving individuals, and general government are ultimate buyers in the sense that they do not buy for resale in the market. Accordingly, their purchases are not elements of cost in the value of other output produced for the market. Hence there is a presumption that their purchases should be regarded as final products in any measure which purports to give a complete accounting of the entire output of the nation. Business organizations and government enterprises, on the other hand, are intermediaries in the sense that they produce for sale in the market. Accordingly, their purchases, to the extent used up in further production, are included in the values of goods and services which business sells. Hence there is a presumption that such purchases are intermediate products and should not be included separately in a measure of value of national production.

¹ Pigou defines economic welfare as 'that part of social welfare that can be brought directly or indirectly into relation with the measuring-rod of money'. (*The Economics of Welfare*, Third Edition, London, 1929, p. 11.)

Since the expenditures of individual consumers and of non-profit institutions serving individuals are incurred largely to meet the needs of individuals, they consist in the main of goods and services that are elements of what is commonly regarded as the standard of living. Government purchases consist essentially of goods and services provided on behalf of the population as a whole, which it has been found better to secure collectively than individually. They should likewise be included in a measure of the total goods and services provided to satisfy the needs of the members of the community. In contrast, the bulk of business purchases of goods and services consists of items that are raw materials in the production process, rather than items that directly satisfy human needs. Their separate count is accordingly not necessary in enumerating the flow of final goods and services.

We believe that this is a realistic description of the general nature of consumer, government, and business purchases and that our conventions for distinguishing between final and intermediate product are accordingly useful for segregating the major types of goods and services provided to satisfy the needs of individuals.¹

The 'convention' just described may seem realistic, but it hardly provides a significant criterion for distinguishing final products. The difficulties emerge if we ask in what sense purchases by individuals for consumption are not for resale within the current time unit. That they are consumed and physically vanish (as is true of many of the goods in question) is no test: the same holds for raw material purchases by business firms. Many individual consumers are during the current time unit sellers of labor services: the food, clothing, etc. they buy for themselves and members of their families may, therefore, be classified as bought for resale, since the rendering of labor services is contingent upon life and minimum comfort of the worker and his family.

Clearly, in this criterion of purchase not for resale, the kind of resale by individual consumers just suggested is excluded because the use of the goods is recognized as *ultimate* consumption, rather than consumption in producing the labor force. Such classification is tantamount to saying that the life and happiness of individuals is an end purpose of economic activity; and that any good is final if it contributes to this purpose without further circulation within the economy. In other words, exclusion of resale by ultimate consumers is necessarily a reimportation of

¹ See *The Review of Economics and Statistics*, August 1948, p. 183.

the criterion of individuals' welfare as the basis for classifying some goods as final products and others as intermediate.

The next question arises as to the meaning of purchases of goods by government not for resale. Clearly, no process of ultimate consumption occurs in the case of government, except where services are provided to ultimate consumers. Outside of these cases and government capital formation, the purchases of government are not resold in the sense that a full specific price is charged for them; but they are passed on to enterprises and to society at large. Should the fact that no specific price is charged mean that we have no resale, and hence that the corresponding government purchases are final product?

If the answer is 'yes', two objections arise. The first is that within the private sector also some purchases are not for resale – in the sense that while the good purchased is passed on to business users, no specific charge for it may be made to the user. This is true of all monopolies that charge discriminatory prices to their customers. In such cases the monopolists purchase some goods or produce them directly, and then pass them on, to at least some of their business customers, for only a partial *quid pro quo*. Should we consider the purchases by these monopolists of the goods so passed on as part of 'final product'? And if the answer is that they are in fact sold but the price is paid by someone other than the specific business user, would not the same argument hold in case of government?

The second and more important objection is that failure to resell means 'finality' within the current time unit only if there is no chance of another enterprise using the good in question (or adding it to stock). But if failure to resell means only failure to charge a price and not failure to pass on the good to enterprises, then how can the good be treated as final? It can be used by business and other firms; and it can enter other products, and thus cause duplication. The argument that the specific price of the good in question is zero, or close to zero, is not relevant to the main criterion of 'finality' discussed here, viz., that of 'purchases not for resale'. If we also introduce the criterion of a 'fair' price, we should have to consider the problem of prices inflated by taxes, without a specific *quid pro quo*.¹

¹ More specifically, a good, A, purchased by the government and then passed on *gratis* to a business firm (or to society at large) may have a price of zero to the recipient; but somebody else may be paying for it and including the cost in the price of his commodity or service (B, C, D, or E). In the final product approach

One can see that the linking of 'finality' of a product with 'not for resale', in the sense that it need not be sold for more than a token price, is important in a society where lack of means of payment in the hands of would-be purchasers is an ever-present threat; and on the theory that full employment of resources is conditioned by an adequate flow of purchasing power to consumers and of means of credit and existence of confidence on the part of business. The purchases not for resale are final in the sense that, once they have materialized, no further claims upon means of payment at the disposal of society (ultimate consumers, private business, government) are made. In other words, these are final *expenditures* which, if they can be made, will spell certain monetary levels of *gross* output. But failure to resell is, for reasons just advanced, clearly an inadequate test for identifying final product.

3. *Social framework as end-purpose*

It is contended below that most government activities are designed to preserve and maintain the basic social framework and are thus a species of repair and maintenance which cannot in and of itself produce net economic returns. Yet at certain junctures in the life of a country, e.g. in times of a crucial war, this interpretation may seem inadequate: it suggests the subordination of a life and death struggle to the flow of goods to individuals, and thus denies that at such times individuals' current welfare may be less important than survival of the social framework. The argument would lead toward temporary recognition of success in war and preservation of a country's social framework as a purpose at least equal in importance to welfare of individuals. The result would be to recognize all goods flowing into the armed conflict as final products; and to include in national income not only consumers' outlay and net output of government as defined below, but also all expenditures of government on war purposes.¹

Reasonable as such an approach may seem in the stress and strain of a major war, it can be valid only during these extra-

we take B, C, D, and E at market prices, thus including the price of A. Hence, so far as A is a product absorbed in uses other than ultimate consumption, the fact that it was purchased by government not for resale does not prevent duplication if it is included along with B, C, D, and E.

¹ See *National Product in Wartime*, p. 17-19.

ordinary and necessarily brief intervals in the life of a body social. The elevation of success in war to a position in the hierarchy of social goals equal to the provision of welfare to individuals is warranted only if it can seriously be conceived that failure in the war is likely to result in a complete breakdown of the national economy. Conflicts of so crucial a character cannot obviously occupy more than a limited fraction of the secular run of a national economy's life. One must particularly beware of extending this viewpoint, justified by necessarily temporary crises in the life of a nation, to the common run of public activities involved in a continuous maintenance of the social framework within which the thousand and one economic activities are carried on.

This is not to deny that if a chronic state of crucial struggles ever arrives, there would be need for asserting two end purposes to economic activity: welfare of individuals, and preservation of the social framework. But in that case distribution of resources between the two end purposes would be determined by a variety of factors that cannot be encompassed in economic analysis; and while the results could be measured, a proper interpretation would have to await a new type of economic-political theory. The latter would include not only the factors now considered in the analysis of economic phenomena under conditions of peace and political stability, but also those that determine allocation of resources under conditions of external struggle and extreme pressures upon a nation's political framework.

It is clear that any change in the definition of end purposes of economic activity has an immediate bearing upon what is included in national income; and hence upon how the net product of public activity is defined. Indeed, choice of end goals as a criterion in defining net product affects even the recognition of factors. Factors are what factors do, and factors are identified by their participation in the creation of final net product. The yield of factors, their aggregate compensation, must equal the net product and hence be governed by the criteria that define the latter. However, there is little need to stress the point further. We return to our basic set of criteria – satisfaction of needs of ultimate consumers, present and future – and consider more closely how the net product of government activity can be distinguished from intermediate product.

4. *The three past approaches*

All the approaches cited in this section recognize the basic criterion just formulated. They differ, however, in their judgment as to how far the criterion can be applied in practice. They are dealt with briefly, in the way of a survey of the experience prior to the time when the official current estimates 'solved' the problem by raising government to the status of an ultimate consumer.

(a) The first approach may be designated one of total despair, being based on a view that no reliable bases, *in principle*, are available for distinguishing in government activity between final and intermediate output. To use a more neutral term, descriptive of its implications as to the treatment of government activity as a producer, the approach may be designated 'wholesale' since it involves either a wholesale acceptance of all government product (expenditures on commodities and services) as final net output; or wholesale rejection on the ground that none of it is final product.

This viewpoint may best be illustrated from the writings of J. R. Hicks. In an article (joint with U. K. Hicks), we read:

. . . in the above classification no account has been taken of any deduction from the gross contribution of firms due to their utilisation of the free services of public authorities. In fact, the services of police, justice, and defence do contribute to production, and may be thought of as used in production in the same way as power and fuel. If we decide to give its full weight to this consideration only a fraction of the output of public authorities may have to be reckoned as entering into the final product. And in this case a deduction from our various totals equal to a large proportion of public net income must be made. . . .

It is, however, extremely difficult to see how much deduction should be made. The protection of life and limb is presumably a part of final output, so is the use of the roads for pleasure purposes. How do we draw the line between the value of these services and the value of those services which ought to be deducted? The division seems to be entirely arbitrary. Consequently, if we want to measure something and not to arrive at a figure for the national income which is what it is just because we say it is, it seems better to disregard this productive utilisation of public services, and to regard them (by definition) as being reckoned entirely into final output.¹

¹ 'Public Finance in the National Income', *The Review of Economic Studies*, Vol. VI, No. 2, February 1939, p. 150.

And in a footnote to this statement the authors add:

It may be noted that our fourth breakdown, by separating out public net income, provides an upper and a lower limit for the national income (with or without public income). It is open to anyone to decide what fraction of public output he considers to be a 'producers' good', and having made the necessary deduction, avoid the convention of classifying all public expenditure as final output.¹

In a later article, devoted to a theoretical analysis of the welfare and productivity implications of the valuation of social income, Professor Hicks sees no reasons for changing his position. In discussing Colin Clark's formula, which includes indirect taxes fully, Professor Hicks says:

There is, however, one substantial reason why Mr. Clark's formula must indeed be expected to overestimate the *Social Income including public services*. Some part of the output of public services is not final output, but plays its part in production by facilitating the production of other goods (maintenance of law and order, roads used for business purposes, and so on). To reckon this as well as the goods whose output is facilitated would involve double counting. I do not see how we can hope to do anything about this in practice, for we have no reliable criterion by which to distinguish that part of the output of public services which is not final output from that which is. We must just be prepared to remind ourselves that the Clark formula has not in fact succeeded in eliminating every sort of double counting.²

Three comments should help to elucidate the meaning of this approach. First, while the discussion is usually in terms of whether or not to add indirect taxes, the problem is being answered in terms of all taxes. Second, it would have been as simple a convention to classify all government activity as yielding indirect output alone, as to classify all of it as final output. If the latter convention is chosen, the implication must be that 'public services' are viewed as being *predominantly* of service to consumers or constituting additions to capital outside of the private sector. Third, while the statistical consequence of the choice of 'convention' here means identity of the measure with that of government product in the current official estimates, the

¹ *Op. cit.*, p. 151.

² 'The Valuation of the Social Income', *Economica*, Vol. VII (new series), No. 26, May 1940, p. 118.

theoretical position is different in principle: it does not accept the recent contention that identifies final products with purchases not for resale, and leaves the way open to a change in procedure when practical circumstances warrant. Indeed, in a recent publication Professor Hicks registers a change in his position:

I have never denied that there is a distinction between those government activities which have to be regarded as a part of final output, and those which (at least in principle) are not. But I used to think that the distinction was too vague to be of much use to the statistician. Later on . . . my wife demonstrated to me that the making of a significant classification of public expenditure on these lines was a much less formidable task than I had supposed. The difficult cases are quantitatively of secondary importance, with (I think) the exception of road maintenance.¹

(b) The second approach shares with the first its essential pessimism as to the feasibility of separating in government activity final from intermediate product. But it adopts a different convention as representing a more palatable practical compromise. It may conveniently be designated the tax-payments approach.

In its use in national income measurement, in the past work of both the National Bureau of Economic Research and the U.S. Department of Commerce, this approach has undergone some evolution and has emerged in two variants. Attention to these two variants serves not only to indicate how different assumptions can be made in interpreting government activity in terms of net output, but also how changing circumstances force revision of assumptions that seemed acceptable at a different time.

(i) The first variant involved two basic assumptions: (a) direct taxes paid by individuals measure the value of services by government to ultimate consumers, and (b) net business taxes (i.e. net of subsidies) represent full and complete payment for intermediate product of government.² The combination of these assumptions meant that final product of government, not

¹ *Economica*, August 1948, p. 164.

² These were the implicit assumptions of the estimates by the National Bureau of Economic Research, from the first set published in 1921 until the second variant was formulated and presented in *National Income and Its Composition* in 1941. The same was true of the U.S. Department of Commerce estimates of national income until the recent revisions (1947).

already represented by individuals' taxes, could take the form of additions to government capital alone and could be financed only out of deficit; and that domestic and foreign transfers also could be financed only out of deficit.

The acceptance of these assumptions resulted in a simple formula for national income: national income equals the sum of all income shares *gross* of direct taxes paid by individuals, the income shares including undistributed net profits or losses of private enterprises after all tax payments. Since additions to government capital could be only out of deficit, they did not have to be added; and neither were domestic transfers to be included. Foreign transfers, which should be subtracted if financed out of deficit, were neglected for the realistic reason that they were practically nonexistent in the United States (war debts resulting from World War I having been classified as true loans). And the whole calculation was in terms of current government accounts, disregarding repayment of debts. Taking the latter into account would not have changed the formula, or the resulting national income total.

This frankly conventional choice of assumptions, with their conveniently simple result, seemed fairly satisfactory during the 1920's and early 1930's in the United States, when the total scope of government as a producer or transfer agency was small relative to the private sector; and, particularly, when transfers and deficits were comparatively small. But when, as a consequence of the drastic depression, huge government deficits and large transfer activities (in the form of relief) made their appearance, it became dangerous to assume a neat correspondence between taxes and government product and a different variant was suggested.¹

(ii) In the second variant (embodied in *National Income and Its Composition*) the first assumption, the equivalence of direct taxes paid by individuals and services by government to ultimate consumers, was retained. But the second was dropped. Instead, the other part of the final government product was secured directly, by a comparison of real capital formation under government auspices with changes in government debt. The

¹ This is not intended as an accurate description of the motives that led to the change in the assumptions in the National Bureau's estimates in the late 1930's. It is rather a post-facto rationalization of an adaptation of a conventional decision to changed circumstances, which was made out of intellectual discomfort caused by the old convention.

addition of this difference between change in real government capital and change in government debt included such net product of government (outside of services to individuals) as was financed out of taxes, included such repayment of domestic debt as was made out of taxes (which species of domestic transfers should be included); and was necessarily adjusted by also adding all other domestic transfers (e.g. relief) to the income shares. The final formula for the second variant is: national income equals (sum of income shares *gross* of direct taxes on individuals) plus (domestic transfers, not in repayment of debt) plus (excess of real capital formation by government over change in government debt).¹ As in the first variant, foreign transfers were neglected since they were nonexistent or insignificant.

(c) The third approach, while recognizing the difficulties of classifying government activities as final or as intermediate product, calls nevertheless for such segregation. Calling for detailed consideration and analysis of government activities and an allocation of the latter between final and intermediate products, it may properly be designated the 'specific' approach.

It has been used directly in national income estimating in Germany and Sweden; and partially in several attempts to establish fully individuals' share in national product or the share of some economic group.²

¹ The controversial question concerning valuation of government services at cost or market basis is no longer an issue, if we accept the assumption that direct taxes paid by individuals measure the value of services by government to individuals as ultimate consumers (see the discussion in *Studies in Income and Wealth*, Vol. Two, National Bureau of Economic Research, New York, 1932, pp. 269-316). On this assumption, domestic transfers must be added; and the excess of real capital formation over the change in debt must also be added to derive the correct total of national income as net output, at current market prices. It is true, however, that the assumption implies a market (payment) rather than cost basis of valuation of government services to individuals.

² For treatment in the estimates for Sweden see *National Income of Sweden, 1861-1930*, by Eric Lindahl, Einar Dahlgren, and Karin Kock, London, 1937, particularly Vol. I, pp. 226-31; for Germany: *Das Deutsche Volkseinkommen vor und nach dem Kriege*, Einzelschriften zur Statistik des Deutschen Reiches, im 24. Berlin, 1932, particularly pp. 14-16 and 134-41. Gerhard Colm presented this viewpoint and exemplified its application to the case of the United States for 1932 in his paper, 'Public Revenue and Public Expenditure in National Income', *Studies in Income and Wealth*, Vol. One (National Bureau of Economic Research, 1937, pp. 173-227). R. W. Nelson and Donald Jackson allocated in fairly detailed fashion the outlays of the federal government for fiscal 1936 between final and intermediate product preparatory to further allocating each between those going to farmers and to nonfarmers, in their paper, 'Allocation of Benefits from Government Expenditures', *Studies in Income and Wealth*, Vol. Two (1938, pp. 317-42). In his paper, 'Three Estimates of the Value of the Nation's Output of Commodities and Services - A Comparison', *Studies in Income and Wealth*, Vol. Three (1939, pp. 319-80), Clark Warburton estimates government services to

The approach involves a direct denial of the judgment of the first two approaches, viz. that government activities are not properly segregable into final and intermediate product because there is no reliable principle on which such segregation can be made.

Naturally, in its practical application the approach also involves conventions. Thus, when in the national income estimates for Sweden the expenditures for a large sector of government activity are apportioned, for lack of adequate basis for a more specific allocation, equally between final and intermediate product, the element of convention enters. But it may be claimed for the specific approach that conventional judgments are applied to a much narrower field than in either of the first two approaches; and that the limitation occurs by virtue of direct recognition of at least some sectors of government activity as belonging distinctly to the final or to the intermediate product category. If wide agreement is possible with reference to this latter step; if no demurrer can be entered against classifying, say, expenditures on health and education as direct government services to ultimate consumers, and expenditures on economic regulation as services to business, the conventions of the third approach are clearly to be preferred to those of the first approach; and even to those of the second approach in its more elaborate variant.

Disregarding for the moment the question whether the improvement in the estimate warrants the additional work involved in the application of the third approach, we may state that, *in theory*, the third approach is the only acceptable one – provided that agreement can be established as to principles of classifying government activity between final and intermediate products, principles so applicable to ordinarily available data on government expenditures as to permit a marked narrowing of the area within which purely *conventional* bases of allocation must be used. Such principles can be formulated, at least in tentative form, as an initial basis from which agreement may evolve. With their formulation, the specific approach to the measurement of final product of government activity is the only one that can and must

individuals *qua* consumers (see particularly the items on pp. 352–55). In a recent study for Great Britain, *Redistribution of Incomes Through Public Finance in 1937* (Oxford, 1945), Tibor Barna not only estimates services by government to individuals; but allocates the value of these services for the various groups in the distribution of income by size.

be followed in estimating net product of economic activity. And to return to the question of practical expediency, recent years have witnessed such enormous expansion of government activity, an expansion likely to persist into the future, that additional work devoted to the improvement of estimates of the final product of government is urgently warranted.

5. *Criteria for identifying final product of government*

Since final product of government consists of two distinct parts – consumers' outlay and private capital formation – criteria or principles of identification must be set up for each part separately.

The services by government to individuals, by which we mean activity of government that results directly in a flow of goods to ultimate consumers, can be identified with the help of three criteria. The first is that the individual recipient of the service from government pays no price or only a token price. This is to distinguish cases in which government acts in the sense of our analysis from those in which government acts as a business entrepreneur. To illustrate, we are concerned here with *free* public education but not with the activities of the post-office in which the service is rendered for a significant *quid pro quo*. Only if the price is a token price and only to the extent that services rendered are, therefore, financed out of taxes, deficit, or any other sources except specific fees paid by consumers, will the activity be classified under government service to individuals.

The second criterion is that the government service be available to the individual only upon his overt initiative, rather than to him as a member of a social group who, as an individual, may be quite unaware of the service. To illustrate: services of a government hospital, available to an individual upon request, would be classified by the criterion as a government service to individuals. But the services of the state legislature, higher judiciary, the army and navy, etc., for the preservation of the social order, and thus for protecting and extending the position of an individual as a member of society – a service which the individual may or may not be aware of, but which he cannot request on his individual initiative – is not recognized as service to individuals as ultimate consumers.

This criterion grapples directly with what is obviously the central difficulty in distinguishing between final and intermediate

output of government, viz. the numerous and recently enormous activities designed to maintain the society in internal peace and to preserve its position *vis-à-vis* other countries. It is this difficulty that leads in the first two approaches in section 4 to a denial of the feasibility of reliable identification of net product of government. The criterion resolves the difficulty by classifying all such activities as intermediate rather than final product.

The reason for so doing lies in the recognition that economic activity is contingent upon the existence of a given social framework – a set of working rules and institutions that govern members of society in their relation to each other – as well as a set of practices (unfortunately but few firm rules) that govern the relations of a given national economy to others. National income is a measure of net output of economic activity *within* the given social framework, not of what it would be in a hypothetical absence of the latter. The maintenance and modification of this framework, even though it employs scarce resources that may be secured on business markets, cannot in itself constitute part of the final product of economic activity. One could, if one wished, classify this social framework as a kind of basic capital, but not in the strict sense of economic capital whose increase and decrease can in and of itself enter economic accounting and national income. The activities by government designed to preserve or expand the framework involve economic costs to society at large; but any net returns from them cannot be associated directly with any changes in the framework, certainly not in terms of services to individuals. This does not mean that such changes in the social framework may not facilitate greater production in the future; but then it will be accounted for when such greater production means a greater flow of goods to individuals.¹

In other words, the flow of services to individuals from the economy is a flow of economic goods produced and secured under conditions of internal peace, external safety, and legal protection of specific rights, and cannot include these very conditions as services. To include the latter implies feasibility of national income and of a flow of services to individuals outside the basic social framework within which economic activity takes place. There is little sense in talking of protection of life and

¹ The bearing upon government capital formation is noted below, in discussing the criteria for identification of that part of final product of government.

limb as an economic service to individuals – it is a pre-condition of such service, not a service in itself.¹

Another important argument forces us to view government activities on internal and external defense and on economic and social regulation as costs rather than net product. One need not be an economic determinist to conclude that the growing magnitude of government activities of the type just mentioned is closely connected with the growing complexity of the economy and the international frictions which inequalities in the rate of economic growth among nations produce. The factors that made for increased economic productivity and increased flow of goods to consumers and to capital stocks – advanced technology with its change in scale of operation and magnitude of fixed capital investments, the increasing size of business enterprises, the better organization of labor, farm, and other groups, the social system that maintains the economic harmony of conflicting groups in a complex society – are the very same factors that made for increased activities by government. The latter are not natural calamities unconnected with the economic system; hence increased government outlays cannot be interpreted as if they were increased production of fuel occasioned by growing severity of climate – a realm beyond social control. On the contrary they are an increased cost of operating the economy, the other side of the shield of economic progress. It is difficult to understand why the net product of the economy should include not only the flow of goods to ultimate consumers, but also the increased cost of government activities necessary to maintain the social fabric within which the flow is realized.

¹ This explains why comparisons of economic measures among societies that differ materially in their social framework are so intellectually unsatisfying. Economic measures, by the nature of the case, must reflect results of economic activity proper, with the framework of society taken for granted. But individuals' total welfare, as distinct from economic welfare, reflects these basic conditions of the framework of society. The very fact that no one has as yet seriously proposed including in national income the economic value of individual liberty shows clearly that the services of social framework are not economic services to individuals as ultimate consumers; and should, therefore, be excluded by the criterion just suggested.

It is the acceptance of this view on government activities that lies at the basis of the abandonment of the convention used by the author in the past and described briefly under the second approach (section 4(b), above). One may also note that the criterion suggested would result in a different set of estimates of net output of government from those derived by the estimators who did use the specific approach in the past. In practically all cases, protective and legal services of government were included, at least in part, under services to individuals *qua* ultimate consumers (see references in footnote ¹ on p. 190).

However, the second criterion which calls for individuals' initiative and action preceding the receipt of service does not exclude fully all government activities designed to maintain the social fabric. The reason for so formulating this criterion is that many government activities relating to the general social framework can only be undertaken by decision of public bodies. Indeed, where common interests of society are involved, individual action as contrasted with group action is often barred. But this second criterion is, itself, not sufficient. For there are numerous cases when the government acts in response to an individual's initiative, when action follows without any price or only at a token price, and yet no economic service, no final product can be recognized. To illustrate: an individual's appeal to a court resulting in judicial action is not followed by a government service that is classifiable as a final economic good (regardless of whether the verdict is favorable or unfavorable). Creation and destruction of rights is not in itself production of final goods, even though such rights may have high market value for individuals and firms. Yet we have here a case where both the first and the second criterion fail to bar recognition of the government activity as constituting services to individuals as consumers, i.e. as final product.

A third criterion must, therefore, be introduced. It requires, in addition to *gratis* basis and individual initiative or action, that the services by government to individuals have an analogue in the private markets. Only those government activities directed to satisfy individuals' wants are included which find their parallel, and on a substantial scale, in similar services purchased by individuals on private markets. This permits the inclusion of such services by government as education, which obviously finds its analogue in purchases of private education; medical services, with similar analogues in private medical service; parks, theaters, public tourist centers, amusements, etc. On the other hand, judicial, police, external defense, legislative, and all other similar services are excluded; and so also is excluded the vast network of government activities in the way of economic regulation and information, since any analogues that exist in the private market are constituted of purchases by individuals not in their capacity as ultimate consumers, but in their capacity as members of business firms.

It must be admitted that the third criterion breaks down if

stretched too far. If *any* appearance on private markets is considered as satisfying the test, many government activities will be classified as final product even though they cannot easily be acknowledged as such. People hire bodyguards, and one could, therefore, claim that police activities are economic services to ultimate consumers, whereas one should classify them as intermediate product, costs of maintenance of social order at large. Hence 'widespread' use in private markets is called for; and one could argue that if widespread use of private police is necessary, then the social framework does not recognize an overriding need for internal peace and under such conditions police activities by government should be counted as services to individuals. Yet 'widespread' is an elastic term.

Another difficulty with the criterion becomes apparent when what is obviously a service to an individual as an ultimate consumer becomes so well discharged by government that it ceases to be provided on private markets (e.g. free government medicine) and is discharged by government without any cost. Yet one could argue that in such a case free medical service has become part of the social framework, like free justice, free right to participate in elections, and free police protection. The examples illustrate that the line of distinction between activities designed for the benefit of society at large (i.e. as a body) and services designed for individuals as consumers is not constant – it changes with shifts in society's consensus as to the indispensable prerequisite of a satisfactory social framework.

Yet, the combination of the three criteria should provide a workable distinction of those government activities that can be classified as services to individuals as ultimate consumers. The first criterion distinguishes government business from government *par excellence*. The second excludes such government activities as find a widespread parallel on the private markets (purchases and production of certain types of commodities needed for the benefit of society at large, e.g. military airfields) but which, being for the benefit of society at large rather than the individual as ultimate consumer, do not follow or become available upon an individual's initiating action. The third criterion excludes such government activities as may follow an individual's initiating action, but are only the result of an attempt by the individual to adjust his position within the social framework: actions of the adjudicating, or legislative, or administrative type,

which do not find any widespread analogue on private markets for the simple reason that society does not entrust them to private business.

We turn now to the problem of identifying the capital formation component of the final product of government. Here analogy with the private sector is more helpful than in the case of government services to individuals. Net output includes not only goods that become available during the year to ultimate consumers, but also such additions to or drafts upon the stock of capital goods at the disposal of the country's economy as result from current productive activity. These changes in stock of capital goods are included because they mean increase or decrease in potential capacity of the economy to supply goods for consumers in the future – capacity in terms of ability to produce a larger final output with the same costs or the same final output with lower costs. Such changes in capital stock in any single country consist of two distinct parts: additions to or drafts upon the stock of real capital goods within the country (inventories, durable equipment, construction units, and the like); and change in the net balance of claims of the given country against foreign countries.

In defining and measuring changes in the stock of real capital goods within the country, three basic criteria are used. First, all capital goods are included regardless of their distance, in the customary chain of production relations, from such final goods as satisfy wants of ultimate consumers. Whether the capital good is of a type in which capacity to increase output of consumers' goods in the future may be clearly perceived (e.g. a residential building) or of a type in which connection with consumers' goods must be traced through several links of production-consumption relations (e.g. a blast furnace) is of no bearing: changes in both types of capital goods must be included in net output. The same criterion applies also to changes in the stock of real capital goods in the hands of government. Even if government capital is designed for turning out intermediate products alone (e.g. armament), changes in it should be included, because additions to such stock reduce the future cost of maintaining or extending the social framework which is indispensable for operation in the future, i.e. for the future output of consumers' goods. There is no inconsistency in including in the final product of government changes in the stock of armament, and yet excluding

from final product such government activities as are carried on by the country's armed services; as there is no inconsistency in including additions to the stock of blast furnaces in net output, and yet excluding pig iron from the flow of finished goods to the country's ultimate consumers.¹

The second criterion uniformly followed in identifying changes in private capital formation is the exclusion of additions to, or drafts upon, stocks of intangibles and claims within the country. Internal claims are excluded simply because an increase in claims of one group is necessarily offset by an increase in obligations of another group. Intangibles are excluded for a somewhat similar reason. When acquired by private business firms, such intangibles are often in the nature of a preferential position *vis-à-vis* other firms – in the same or in other industries; and to that extent what is a gain to a firm that acquired the intangible is an equal loss to those that have been thereby put in a position inferior to that formerly occupied. Where gain in intangibles can be characterized as nonexclusive, their importance to the future productive capacity of society cannot be denied (consider, e.g., additions to scientific knowledge). Indeed, it may be said that the most important capital stock of society is intangible – consisting of the health, intelligence, and skill of the people who form the body social. But no attempt to measure the economic magnitude of changes in such a stock can even be visualized: only its effects can be, and are, measured in terms of changes in production of tangible goods included under national income. Were it possible to measure changes in the stock of intangibles in economic terms, it might not be necessary to measure and

¹ One may indeed question the usefulness of measuring changes in stock of armaments (and related products) in time of war, when it is quite apparent that the huge additions that may have been made by the end of a given year will be dissipated in the next year of continuing warfare. But the question here lies in the usefulness of a *year* as a unit of net output accounting, in connection with a process like a war that may last several years and which is, therefore, *incomplete* by the end of an annual time span; not in the legitimacy of including net changes in stocks in a given year's net output.

A more important objection to the inclusion of additions to armaments is that they, in fact, do not represent an increase in a country's capacity to maintain or extend its position in the world since they are inevitably offset by additions to armaments of would-be enemies. This argument is unanswerable if one grants the necessary connection between increases in armaments of one country and of its would-be enemy. Yet it can also be argued that, given the present organization of the world, there are many situations in which increase in armaments prevents rather than precipitates a conflict. The case is far from decisive; and under the circumstances it may be best to admit additions to stock of armaments as evidence that current production does contribute to future welfare by reducing future costs of maintaining a country's position in the world.

include changes in the stock of *tangible* capital goods. National income could then be made to comprise the current supply of consumers' goods and net changes in capacity for the future as reflected in the stock of our knowledge and ability, rather than in the stock of commodities.

The same criterion must be applied to measuring changes in the internal stock of capital goods under government auspices. Government activity can add enormously to the stock of intangible capital and can also result in heavy inroads upon the latter. The ability and willingness of members of society to cooperate in maximizing net output are greatly affected by the activities of their government. But there is, in the nature of the case, no way of assigning economic magnitudes to changes in such intangible capital directly: magnitudes can be assigned directly only to the tangible effects, in the form of production of commodities and services. We can, therefore, include under government capital highways, buildings, dams, battleships, etc.; but not intelligence, loyalty, and cooperativeness of citizens, or international prestige and popularity, internal peace, or external freedom.

No particular questions arise concerning the identification of the other segment of capital formation under government auspices, changes in net balance of claims against foreign countries. The inclusion of this item in capital formation, in the private or government sector, assumes that possession of a claim against a foreign country means command over that country's output; and the existence of a claim against one's own country by outsiders represents command by them over the country's goods. When world conditions validate such an assumption, changes in the net balance of claims against foreign countries must be included in current net output of a country's economy.

One important question, however, is still to be raised concerning capital formation by government. Unlike the private sector, in which changes in real stock of capital goods and in balance of claims against foreign countries is a result of economic activity, changes in the stock of goods or claims in the hands of government may result from war – overt military conflict or the hidden war that is often conducted in times of peace by diplomatic means. Should we include such changes, whether tangible (acquisition of land, equipment, etc.) or claims (reparations, etc.) in capital formation under government auspices?

The answer is not easily found. If additions to the stock of armaments are to be included in net product of government, on the ground that they mean an increase in the country's capacity to preserve its position with less drain upon future output, should not acquisitions resulting from war also be included as representing similar increases in the country's capacity to maintain and extend its international position? Yet the parallel is not quite true, since additions to the stock of armaments were assumed to be a result of a country's economic production – use of resources, bought mostly on private markets, to satisfy the ever-present need for protection. The additions to capital discussed here are assumed to be the result of war, a process that can hardly be characterized as economic production; and one in which resources are ordinarily used without strict regard for the rules of the private market. Were war classified as economic activity, we would have to deal with the problem of costs and returns to the members of armed services, mobilized by conscription and paid in terms economically incommensurate with their sacrifices.

The answer thus depends not upon whether or not booty acquired in war is a true addition to the capital stock of a nation: in many cases it definitely is, just as for the country defeated in war it is often a real economic loss. The answer depends upon whether we classify war as an economic activity; and upon whether it is useful in measuring net output of economic activity to throw into one total results of two different types of activity. Even in the private sector, only such changes in capital stock are recorded as result from the process of economic production. Changes due to factors outside the latter (e.g. the incalculable and uninsurable acts of God, either favorable or unfavorable) are ordinarily excluded. Unless by some unfortunate development of international relations war becomes an important and regularly practised process for securing economic returns (in which case society would have to undergo drastic changes that are likely to affect the whole theory of national income measurement), it seems best to exclude it from the realm of economic activity; and to exclude war-produced changes in capital stock from government capital formation, from government final product, and from the country's national income.

6. Statistical problems

Even in countries rich in a wealth of statistical data, the application of the criteria just suggested for identifying net product of government will encounter numerous difficulties. Such statistical problems cannot be discussed in general terms since they vary from country to country, and within the same country, from period to period. Nor would an attempt to apply the criteria to a given country for a given period necessarily reveal all the difficulties, or yield solutions of wide validity.

But some general consideration can effectively be given to the *kind* of statistical problem that is likely to be encountered, given the data that usually are available in the advanced economies of the Western world. The general paths which solution of such problems may follow can be suggested; and some indication given of the reasons for believing that it is possible, by using the criteria suggested above, to reduce to narrow dimensions the area within which *conventional* allocations of government between final and intermediate product would have to be made. The discussion that follows deals with (a) what is to be included to get the sum total of final products of government activity by adding the cost items ordinarily given in the data; (b) how to allocate joint costs; (c) what basis of valuation to use. These questions are common to the measurement of both government services to individuals and government capital formation. Questions specific to the measurement of the latter arise in (d) passing from gross to net capital formation, i.e. allowing for capital consumption.

(a) Once we identify a sector of government activity as yielding services to individuals or additions to capital, there is often no direct way of securing the economic magnitude of the resulting net product. It is true that when such net product is represented by repayment of government debt held abroad, a full measure of the market price is directly given; and the same holds when the product in question is only *paid for* by government, but is turned out on a contractual basis by a private firm that can then be confidently expected to charge a full price. In many cases, however, the government acts as its own entrepreneur; and the value of the net product turned out must be derived by adding the various outlays chargeable to the product in question.

Except for allocation problems, to be noted below, and the

ever to be considered paucity of data, no particular difficulties arise in securing outlays by government on the purchase of labor services and of commodities. Thus the cost of labor and materials is ordinarily given for an estimate of the value of net product of government; and being given fully, it can be used to measure – for given categories of final product – not only the input of direct labor and materials, but also the input of labor and materials on maintenance of whatever capital is used in producing the final product. But one cost item is almost necessarily lacking in the government cost accounting and present in the private firm's accounting: charges on the use of capital. Presumably capital used by government to turn out the final product, like capital used by private firms, yields interest. But while government records payment of interest on its debt, such payment cannot be considered equivalent to the yield of government capital used in turning out net product of government. To make the cost estimate of government's net product complete, interest charges must be imputed.

Whether such imputation is desirable is a practical question, to be answered in terms of labor involved in deriving a defensible estimate and of the desire to make the net product of government fully comparable with private product, if only on a cost basis. One might argue that even the labor and goods costs of government production are not truly comparable to those of the private sector. But if imputed interest on government capital used in the output of final product is to be included, then this interest should appear under the income shares in the analytical cases 1–7 in Part II. For in these cases the value of final net product is not fully covered either out of taxes or out of deficit: part of it is the imputed net yield of government capital already at hand.

(b) In the light of criteria distinguished in section 5, government activity may be divided into five broad classes: (i) yielding only services to individuals as consumers (schools, hospitals, parks, museums, etc.); (ii) yielding only services to business (business information and regulation activity); (iii) yielding only services to society at large (police, army, navy, legislative, etc.); (iv) resulting in additions to tangible government capital (construction of streets, highways, etc.); (v) joint activities, representing a combination of either (i) or (iv) with the others; or of (i) and (iv).

This classification is obviously designed with an eye to the application of the several criteria, and does *not* represent the way the government accounts are in fact grouped. But it is important to note that many of the institutional categories of government expenditures, usually organized by departments with some distinction between current and capital accounts, can be classified *en bloc* under (i) or (ii), and (iii) or (iv). This is certainly true of current expenditures on goods and services under such general headings as the military establishment, the economic branches of the government, public education, and public health service. It is thus reasonable to assume that a large proportion of total government activity can be classified under the 'pure' categories (i), (ii), (iii), and (iv); and that the scope of government activity which is joint and subject to further allocation, with possible recourse to conventional bases, is narrowly circumscribed compared with total government expenditure on goods.

Among the activities under (v) are cases of joint administration, typified by one and the same department administering activities representing current services to consumers as well as activities yielding only intermediate products (e.g. the Executive Offices of the President in the United States); and cases of joint direct activities which should be charged to both final and intermediate product (e.g. maintenance of highways used by both consumers and business firms). In either case it is easy to visualize data that would reveal the relative magnitude of activities or uses serviced by such joint administration or such joint maintenance. The extent to which allocation can be grounded upon specific information, and to which it must perforce be made in a conventional way, is a practical question answered in terms of balancing the improvement possible with the available data against the labor involved in so doing. In empirical work, efficiency of effort must be judged in value of marginal yield. All that one can say in general on this question is that, as in all empirical studies, data and more reliable results are in part a consequence of further attempts at utilization, just as effective utilization depends upon better supply of data. And in the last count, the relatively narrow scope of joint activities of government, compared with total scope of government as a producer, permits approximate allocations without the large errors that would follow the more arbitrary procedures involved in the 'wholesale' and 'tax payment' approaches.

(c) The suggested valuation of net product of government is clearly at cost to the government, not at market value as established by purchasers, since the recipients of the net product receive it free. For government capital, the difference between valuation at cost and in the private market sector is, in theory, negligible: like private firms, government either contracts with private producers for capital supply or produces capital with factors under its own management. In either case, the cost of capital additions to government, like the cost of capital additions to private firms, is equivalent to the market price of the capital addition to its purchaser and user. But in case of services to individuals as ultimate consumers, valuation at cost when provided by government is not similar to valuation of consumer goods when provided by private firms: in the latter case they are valued at market prices, which may differ substantially from costs as incurred by government.

This inconsistency cannot be remedied. While government services to individuals are in part distinguished by the existence of a counterpart on private markets, the parallel is as to class and not as to sufficiently specific goods to permit use of specific market prices. Even when some consumers buy a service on the private market because they are barred from government services by a sufficiently high income status (e.g. medical provisions), one can never be sure that the two services are identical and the market price of one can be substituted for the value of the other; let alone the fact that in such cases private market prices are skewed by the limitation of the demand groups to upper income levels. The inconsistency is there because, by social consent or otherwise, the private market is not allowed to operate freely in the case of the services in question; and the attempt to remedy it by trying to visualize what would happen were it to operate freely is doomed to failure, because our analytical tools and our data are insufficient for a reliable reconstruction of this hypothetical situation.

This need not be fatal to the meaning of national income as a measure of net output, provided that the differences between costs and market values are not so large as to put the two valuation bases on entirely different levels of magnitude. They are not *that* different on the private markets; and by analogy, we may assume that devotion by society of a certain magnitude of resources measured at cost to a certain aggregate of consumer

goods *via* the government does not mean something very much different, in terms of final product, from an identical cost total of resources in the private sector and hence a corresponding total of final products on the private markets. Just as we accept differences in valuation on the market resulting from differences in extent of monopoly in various private industries, so we may accept the cost basis for valuation of government services to individuals – even though other consumer goods are priced at market values.

(d) The measurement of *net* capital formation under government auspices involves an estimate of current consumption of durable capital, to be deducted from the gross value of flow of durable equipment to government. While some questions arising in measuring government capital consumption are parallel to those in the estimation of the gross flow, other problems arise.

As in the case of gross capital formation, only tangible goods are to be included; and no depreciation measures are to be applied to the stock of 'loyalty', 'international goodwill', etc. As in the case of gross capital formation, consumption is to be calculated for all capital goods, whether they are used directly for producing services to consumers or are far removed from the latter in the chain of production-consumption relations. But as distinct from gross capital formation, consumption of government capital is to include *all* capital available at the beginning of the year, whether such capital was yielded by the ordinary use of economic resources in the past or acquired by such extra-economic means as war. The calculation for each time unit must begin with the complete set of resources at the disposal of the economy and in that sense it always begins *ab ovo*.

A more important difference between gross capital formation and capital consumption is that the former is a current flow that usually passes through the markets and is thus inevitably provided with current valuation; whereas consumption of *durable* capital goods within any limited period, such as a year, is an implicit and non-visible process the economic magnitude of which can only be approximated. The difficulties of arriving at such an approximation even in the private sector are well known; and even in the latter, conventional methods are indispensable if a definite result is to be secured. In the case of government, where the pressure for strict accounting is not as great and the need for estimating consumption of durable capital is not so urgently forced by income tax laws or competitive

pressures, the basic data needed for even a conventional estimate of durable capital consumption are rarely available.

Without going into details, which are always determined by the specific characteristics of government accounting in a given country and at a given time, only two general suggestions can be made. First, for government durable capital that is analogous to private durable capital – either with respect to function or regularity of economic use (schools, hospitals, roads, dams, streets, public utility structures, office buildings, etc.) – an estimator would be warranted in borrowing the accounting conventions of private business; and applying, with or without modifications suggested by economic theory, the long-term, simple-curve apportionments of the total value of the durable good over the roughly estimated span of its economic life. In so far as we allow government a modicum of economic rationale in its calculation, it, like private enterprise, will discard a capital item as soon as its economic obsolescence – i.e. cumulated excessive cost of its further use (compared with a more modern substitute available) – justifies replacement. Granted the difficulty of actually finding the rates in question, as well as the bases (capital values) to which to apply them, such estimates should raise no particular theoretical problems.

The second suggestion bears upon such durable equipment in the hands of government as is not used for ordinary economic processes – notably armaments. In so far as these and other war goods are for an investment in peace, the consumption estimate should be that of current depreciation in the stock of peaceful existence.¹ But interesting as the concept is, it involves an assumption of regular occurrence of armed conflict and introduces the notion of intangible capital which we excluded from national income estimates. It seems best, therefore, to measure consumption of capital goods of this type only when they are actually discarded as obsolete or are actually destroyed in armed conflict.

7. *Concluding comments*

There is little need to summarize the essential position taken here in defining national income or net product and the consequent formulation of the net product of government activity. Those interested in the technical details of following through

¹ See the discussion in *National Product in Wartime*, National Bureau of Economic Research, N.Y. 1944, pp. 8-10.

this viewpoint in estimates by flow of income shares will find such an analysis in Part II. But in concluding this fundamental part of the paper it may be well to comment briefly upon the obvious value for various purposes of a 'grosser' definition of both national production aggregates and government activity.

Even if we are interested in net product proper, the real contribution of the economy to what we consider the goals of economic activity, it is clear that these measures, in and of themselves, are inadequate as a basis for understanding how such net flows are produced; or for analyzing any policies designed to increase them or change their structure. To illustrate: it is difficult, if not impossible, to understand and measure the factors that determine net product originating in agriculture without estimates of the gross product of that industry, the flow of that gross product into various channels, flows from other industries into agriculture (that appear in the latter as costs of production), and the like. Similarly, it is obvious that a policy designed to control the net product from agriculture (e.g. United States agricultural income parity policy) may be better designed if it acts directly on the gross product of agriculture (e.g. by way of price floors for certain major agricultural commodities) than by way of direct adjustment of the difficult, and often administratively unascertainable and unmanageable, net product flow. What is true of agriculture is true of all the other sectors of our productive system, or of any other institutional groupings; their overt appearance is in the nature of gross flows, and their accessibility to policy influence, in the way of tariffs, quotas, subsidies, etc., is most often *via* gross volume of activity rather than *via* the refined and elusive net product yield. Net product may thus be viewed as the result of a complicated chain of actions and relationships, which cannot be understood without recognizing and measuring the latter and which cannot be affected efficiently by policy measures except through the impact of such measures upon the gross, clearly perceived forms of economic activity.

These general considerations suggest the great usefulness of defining government product as the U.S. Department of Commerce does, i.e. as all goods and services purchased by the government. When this definition was urged by the pressures of the war production program, the policy problem was not how much net product government activity yields; the question was

rather how many commodities and services government needs for the prosecution of the war and how many will remain for other needs, such as indispensable capital formation and minimum supply of goods to ultimate consumers. Likewise, when concern about employment prospects emerged in the early stages of demobilization and government activity was viewed as a source of employment, the question was not as to the net yield of such activity but rather how many goods it meant, and goods in this connection meant how much demand for employment and labor. With government product thus defined, and this definition was indispensable for these and other analytical and policy uses, it was only natural to devise a total of which such government product could be conceived as a proper part.

Clearly, the 'grossification' of government product was justified by the uses for short-term problems that loomed uppermost during the war and the post-war years; and further grossification may well be warranted by other purposes. The major objection here is not to such a definition of government product, but to the claim, in all seriousness, that it is a definition of a component in a final, net product total.

II. TREATMENT OF GOVERNMENT IN THE INCOME SHARES APPROACH

This part discusses the treatment of government in measuring national income as a sum of income shares, i.e. payments to factors of production. While we analyze various categories of government activity as part of such an estimate, the solution in each case cannot be reached except by considering its meaning in terms of national income as a *net product* aggregate, for which the bases and criteria were laid down in Part I. The discussion thus assumes throughout that the national income as a net product total is *known*; and in the light of such knowledge arrives at decisions as to how various controversial items in the government sector should be treated in deriving national income as a sum of income shares.¹

¹ This approach is similar to the one used by Gottfried Haberler and Everett E. Hagen in their paper, 'Taxes, Government Expenditures and National Income', *Studies in Income and Wealth*, Vol. Eight, National Bureau of Economic Research, N.Y., 1946, pp. 1-33. It is identical with their test of invariance, to the effect that 'The measure of *real* national income should be invariant to all purely institutional, monetary, and price changes.' The conclusions here are similar to those derived by Haberler and Hagen; but the discussion below is more explicit in its treatment and leads to a different interpretation of some of the positions adopted in the past.

In estimating national income as the sum of income shares, the practice has been to begin with payments to or income of factors (wages and salaries, dividends, interest, rent, undistributed net profits of enterprises after taxes – all, except undistributed net profits, *including* direct taxes) and then consider whether or not indirect and direct business taxes should be added. Another question that arises with particular reference to government activity, is whether, in counting payments to productive factors, to include what appear to be transfer payments from governments (e.g. relief). In the present analysis it is preferable to begin with payments or incomes to factors, net of *all* taxes, direct or indirect; as well as net of all receipts from the government that can in any way be interpreted as transfers.

We are interested here in government whose quintessence is imposing taxes (and other compulsory charges) without necessarily rendering a specific return to the taxpayer; and providing *goods* to individuals and business, without making a specific charge to the beneficiaries. In so far as government conducts a business enterprise operated on a basis similar to private business enterprises, we classify it outside of government – with other business enterprises. Likewise, government-operated insurance plans, either fully or partly contributory, are classified with similar private business enterprises. This is not to deny that government business enterprises may not in fact be conducted on principles different from those of private business. To the extent that they are (i.e. with deficits financed out of general taxes), they belong to the category of government in our analysis and are covered under one or several categories analyzed below. But it would only burden the discussion, without adding to clarity, to include government business enterprises or to segregate their contribution to the magnitude of government *par excellence* as an institution operating outside ordinary private market rules.¹

With this definition of government and the initial total of income shares excluding all taxes, we are ready to consider the treatment of the following controversial items in the govern-

¹ The exclusion of government business enterprises (and insurance schemes) means that in our analysis payments to factors exclude taxes, but include compulsory contributions to insurance (whether by beneficiary or firm) and include earnings of funds of such insurance agencies. Likewise, transfers from government to individuals do *not* include payments of insurance but are confined to transfers that are not in the nature of a return of contributions previously made.

ment sector: (1) indirect business taxes; (2) direct business taxes; (3) direct taxes on individuals; (4) government product not financed by taxes – non-inflationary; (5) government product not financed by taxes – inflationary; (6) subsidies to domestic business; (7) transfers to domestic units; (8) foreign transfers.

1. *Indirect taxes*

The addition of indirect taxes to income shares has been justified on two somewhat related grounds: (i) the differential impact of such taxes on prices when taxes change from one year to the next (and differ from one country to another); (ii) the utility of a net product aggregate at market prices resulting from the inclusion of indirect taxes, as against the net product aggregate at factor costs derived by excluding them.

(i) The first case is stated most clearly by A. C. Pigou who discussed measurement of national income essentially as the sum of income shares approach:

“... the main part of what the Treasury receives in customs and excise duties ought, paradoxical as it may seem, to be counted, in spite of the fact that it is already counted when in the hands of the tax-payers and that it is not paid against any service. The reason is that the prices of the taxed articles are pushed up (we may suppose) by nearly the amount of the duties, and that, therefore, unless the aggregate money of the country is reckoned in such a way that it is pushed up accordingly, this aggregate money income divided by prices, that is to say, the real income of the country, would necessarily appear to be diminished by the imposition of these duties even though it were in fact the same as before.”¹

To this statement Pigou adds a footnote indicating that only part of indirect taxes should be added, in so far as prices are not raised by the full amount of the tax; and that these taxes may indirectly cause production to decline. Other writers tend to follow the same line of argument, without the qualification added by Pigou (see, e.g., Colin Clark's *National Income and Outlay*, London, 1932, pp. 11–12, and *Conditions of Economic Progress*, London, 1940, pp. 30–1).

The validity of the argument depends upon the effect of the imposition of indirect taxes on the *output* of net product. The effect of such taxes upon *prices* of taxed articles is no basis for

¹ *The Economics of Welfare*, 3rd edition, London, 1929, p. 41.

deciding whether they should or should not be added to income shares already recorded. For if the taxes are spent in payment of wages and salaries to government officials whose activity does *not* add to the net aggregate of final products, their inclusion is not warranted. And if they are included in the current money total of national income, an adjustment for price changes by the usual and relevant price indexes will translate an imposition of indirect taxes into a rise in real national income where no such rise has in fact taken place.

In order to make this argument clear a hypothetical illustration is set forth in detail as Case 1. In this case we assume in time unit I no taxes; and also, to simplify the picture, no government capital that could yield final products. There is thus a complete and easy balance of the sum of income shares with the market value of net product, i.e. of national income or product measured by the income shares and final product approaches. And while the example assumes the extremely simple situation of a single product, this does not affect the argument that follows.

In time unit II government appears on the scene and imposes an excise tax on the article. We assume, again for simplicity, that the tax is shifted completely to the price of the article; and that this rise in prices has no effect on supply and demand. The analysis is unaffected if this simplifying assumption is dropped: the whole case could be restated, with the same consequences, on the assumption of a partial shift of the tax to price and of a corresponding reduction in undistributed net profits.

The magnitude of the real net aggregate produced in time unit II depends upon what the government does with the taxes. We distinguish in Case 1 six possible types of use, all involving the use of either commodities or services; the other possible uses of taxes (e.g. transfers) are not considered here, but are dealt with under the headings of subsidies and transfers (Cases 6, 7, and 8).

Among the six types of government activity concerned with commodities and services are (a) payments to employees (or to already existing capital) for assistance to business. In this case no addition to final product occurs, and yet these payments (equal to indirect taxes) appear under income shares. A second type is (b) use of current production or stocks also to assist business. In this case no addition appears under income shares,

CASE 1

Indirect Taxes

Time Unit I

Production, private sector, quantity	100
Market price per unit	10
Value product (market)	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income paid out	200
Undistributed net profits	100
Taxes	0

Total value product 1,000

Production and receipts, government sector 0
 Assumption: No government capital yielding final product

Total national product or income, final product approach	1,000
Total national production or income, sum of income shares	1,000

Time Unit II: Imposition of indirect taxes

Production, private sector, quantity	100
Market price per unit	12
Value product (market price)	1,200

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income paid out	200
Undistributed net profits	100
Indirect taxes	200

Total value product 1,200

Production of government sector, alternative uses of taxes (same assumption as in Time Unit I as to government capital):

(a) Wages and salaries paid to employees assisting private sector (e.g. business analysts)	200
(b) Purchase of goods (current output or stock) to be used in assisting private sector	200
(c) Wages and salaries paid to employees providing services to individuals (e.g. medical care)	200
(d) Purchase of goods (current output or stock) to be used for assistance to individuals (e.g. medicine)	200
(e) Wages and salaries paid to employees who add to government capital (e.g. build a school)	200
(f) Purchase of goods (current output or stock) to be employed in adding to government capital	200

Total national product or income, final product approach, alternative uses of taxes:

Alternative Uses	Private Sector	Government	Total
(a) Current prices	1,200	0	1,200
Quantity units	100	0	100
(b) Current prices	1,000	0	1,000
Quantity units	83.3	0	83.3
(c) Current prices	1,200	200 ¹	1,400
Quantity units	100	16.7	116.7
(d) Current prices	1,200	0	1,200
Quantity units	100	0	100
(e) Current prices	1,200	200	1,400
Quantity units	100	16.7	116.7
(f) Current prices	1,000	200	1,200
Quantity units	83.3	16.7	100

Total national product or income, by income shares and taxes, alternative uses of taxes:

Wages and Salaries	Property Income	Undistributed Net Profits	Taxes	Total
(a) 700 : 200 : 900	200	100	0	1,200
(b) 700 : 0 : 700	200	100	0	1,000
(c) 700 : 200 : 900	200	100	200	1,400
(d) 700 : 0 : 700	200	100	200	1,200
(e) 700 : 200 : 900	200	100	200	1,400
(f) 700 : 0 : 700	200	100	200	1,200

¹In this and subsequent examples price or cost per unit of government product is assumed equal to price per unit of private product.

and there is no addition to net product either. But the goods used in assisting business come either out of current production or out of stocks. In either case they are a draft upon the output of the economy, so that net output must be after subtraction of goods bought with the proceeds of indirect taxes. Consequently, national product, in quantity terms, is, on assumption (b), smaller in time unit II than in time unit I.

In contrast to alternatives (a) and (b), that under (c) involves additions by the government sector to net output of final goods. For on this assumption indirect taxes have been used to hire resources (e.g. employees) that were hitherto not engaged; and they have been put not on activities that do not add to final output (as in alternative (a)), but on activities that are of direct service to individual members of society whose welfare is our basic criterion.

In alternative (*d*) indirect taxes are used to buy commodities to be used for direct benefit to individuals. Here government does not add to the real net product, but neither does it subtract from it by using up goods in the process of production without additions to current net output. It withdraws some final net products from disposition by individual income recipients and places them under its own control; but the goods are turned back to individuals during the current time period, e.g. the use of indirect taxes to buy medicine and distribute it to supplement incomes of low-level income recipients.

Alternatives (*e*) and (*f*) are parallel to (*c*) and (*d*). In (*e*) we assume as in (*c*) that government uses the taxes to engage productive factors (previously unemployed) to add to the final net output of the economy – not in the form of services to individuals (as under (*c*)), but in the form of additions to capital – under government auspices – that would add to the future ability of the economy to provide for the welfare of the country's inhabitants. Alternative (*f*) differs from (*e*) in that such additions to productive capital are attained by the consumption of already existing commodities (out of stock or out of current output), so that in fact the drafts upon current output are only balanced by those capital additions and no change in total net output occurs.

If we are clear as to the magnitude of national product, in current prices or in quantities, under these alternative uses of indirect taxes in time unit II, we can see equally clearly under what assumptions indirect taxes should or should not be added to income shares. Whenever government activity is *not* used for the direct benefit of individuals or addition to productive capital as in alternatives (*a*) and (*b*), taxes should *not* be added. Whenever it is, as in alternatives (*c*) through (*f*), they should be added.

Two general conclusions follow from this analysis. The first is that whether taxes are fully or incompletely shifted is of no relevance to the question whether indirect taxes should be added to income shares.¹ The second is that the decision to add or not

¹ Thus if we assume that indirect taxes have been shifted only 50 per cent, i.e. value product of the private sector in time unit II is 1,100, distributed; wages and salaries=700; property income=200; undistributed net profits=0; indirect taxes=200, national product under various assumptions as to use of taxes is reduced 100 (in current prices) and remains the same in quantity units; and national product, by income shares and taxes, is also reduced 100 units for each of the various alternatives (with the 100 unit reduction coming out of undistributed net profits). All that happens in this case is that the implicit price index (time unit II to the base of time unit I) is 110 and not 120, as in the assumption of complete shift.

to add indirect taxes to income shares is directly determined by the use the government makes of them. Since in practice it is impossible to distinguish various categories of government activity by the sources of their financing, it means – to forestall our final conclusion – that in practical work income shares excluding taxes should be used and augmented by the value of government services to individuals and government additions to productive capital.¹

(ii) The second justification for the indiscriminate inclusion of indirect taxes has been provided in recent years most explicitly in the writing of the national income estimators at the U.S. Department of Commerce. This consists in the statement that the net aggregate product of the economy, if valued at market prices, should include all business taxes (indirect as well as direct, if the latter are not included in income shares or factor payments). The exclusion of indirect taxes means that the same net product aggregate is valued at 'factor costs'.

Perhaps the clearest formulation of this distinction appears in the first article in the *Survey of Current Business* in which what was then a new approach was translated into estimated totals:

The national income . . . measures the *net* value of current output as the sum of the net returns to the various factors of production in the form of wages, salaries, interest, rents and royalties, and net profits earned. . . . There are two major changes which must be made in order to convert national income into a measure of the aggregate of goods and services at market prices. In the first place, a significant proportion of proceeds realized from the sale of privately produced goods and services accrues directly to the Government in the form of corporation income taxes, excise taxes, and other business taxes and does not ever appear in the income accruing to any of the factors of production. Thus, it does not appear in the national income. The Government, itself, in other words, may be said to be the recipient of a distributive share of the income paid out by business. Clearly, the amount it receives in this fashion must be added to the national income if a total is to

¹ Pigou recognizes that where indirect taxes are used to pay for services to business they should not be added (see *The Economics of Welfare*, footnote on p. 42). But seemingly he does not attribute to the whole question of uses of government funds, i.e. the real contents of government activity, its cardinal importance as a criterion for deciding upon inclusion or exclusion of taxes.

be built up which measures the value *at market prices* of all final output.¹

For a complete understanding of this statement two points must be kept in mind. First, net returns to factors as measured at that time under national income by the U.S. Department of Commerce were net of *direct* business taxes. For this reason the adjustment calls for the addition of *all* business taxes, not only indirect. The recent change in practice, agreed upon by the U.S. Department of Commerce and English and Canadian official estimators, will call for adding direct business taxes (such as corporate profit and excess profit taxes) to 'factor costs'. And in this case the difference between net output at factor costs (to be designated, according to the same agreement, 'national income') and the identical net output at market prices (to be designated 'net national product') would be the inclusion of indirect business taxes in the latter.²

The second, and more crucial point, in the present context is that national income, as referred to in the quotation just given, includes returns to all factors of production whether engaged under private auspices or employed by the government. The addition of indirect taxes, to convert a net aggregate product at factor cost into one at market prices, is over and above any government payments to productive factors engaged under its auspices (whether labor, capital, or enterprise).

The distinction between the factor cost and market price valuation in terms of indirect business taxes is at first plausible and useful if one thinks of a specific final product subject to excise taxes. If we assume an integrated plant that uses no pro-

¹ Milton Gilbert, 'War Expenditures and National Production', *Survey of Current Business*, March 1942, p. 10. The second adjustment proposed is to add the allowance for consumption of durable capital; thus taking current output gross of such consumption. This adjustment is not discussed here since it is not relevant to the problems at issue.

For another discussion of the distinction between 'earned income' and 'value of product', see John Lindeman, 'Income Measurement as Affected by Government Operations', *Studies in Income and Wealth*, Vol. Six, National Bureau of Economic Research, New York, 1943, pp. 2-22. The theoretical discussion underlying the distinction provided by J. R. Hicks in his 'Valuation of the Social Income', *Economica*, May 1940, has been critically reviewed by me in the paper in *Economica* referred to in note 1 on p. 178.

² Edward F. Denison, 'A Report on Tripartite Discussion of National Income Measurement', *Studies in Income and Wealth*, Vol. Ten, National Bureau of Economic Research, New York, 1947. This is not the only difference between the two totals; but the major one relevant in the present connection. The tripartite agreement referred to by Denison included official estimators for three countries, but other scholars in the field were not consulted.

ducts of other business concerns and maintains its capital unchanged, its production of X cigarettes during the year is a net output aggregate. If we value it at factor costs the total will be, let us say, 1 million dollars, consisting of \$700,000 in wages and salaries, \$200,000 in property income payments, and \$100,000 in undistributed net profits. An imposition of a 100 per cent excise tax will raise the market value of the same volume of cigarettes to 2 million dollars. Here is a distinction between factor cost and market price totals of net output; and here is a basis for inclusion of indirect taxes if one wishes a market value appraisal of the net national product.

But even in this specific case the difference is not that simple. The 1 million dollars of factor costs include only factors engaged within the private firm on the production of cigarettes. But there may be productive factors engaged under government auspices that are also contributing directly and specifically to the production of cigarettes and their distribution to ultimate consumers: e.g. chemists at the Bureau of Standards or the Department of Agriculture working on improvement of the quality of tobacco, on tobacco machinery, etc. Should not part of indirect taxes used for compensation of these factors be assigned to the factor costs of this particular final product? And should not even the less specific services of government to business, in the way of general provisions facilitating production anywhere, be allocated, in some fashion, to the factor costs of the cigarette output total?

Thus even for a specifically defined final product indirect taxes do not in fact measure the difference between costs of factors whose production can reasonably be assigned to the good in question, and the market value of the good at the going prices. Where indirect taxes exist they are likely to exaggerate the excess of market values over the specifically assignable factor costs. Market values of goods free of indirect taxes (on the assumption of no other sources of government revenue and a balanced budget) will fall short of, rather than exceed, the costs of factors that contributed to their production.

However, the fact that, for specific categories of product, factor costs assignable to the final goods differ from the market price values of the latter; or that in some specific groups of final products indirect taxes may be used as a rough approximation to such a difference between factor costs and market prices, is

of no relevance to the argument in terms of the national product *aggregate*. In arriving at this aggregate we may use factor costs if we employ the income shares approach and may or may not have to add indirect business taxes. In arriving at this aggregate we use market prices if we employ the final product approach. But we are attempting to measure one and the same real aggregate; and it remains to be demonstrated that the use of factor costs, i.e. including returns to all employed productive factors, will yield a net product aggregate which must fall short by the amount of indirect business taxes of the total derived by using market prices of final products.

Case 1 shows the 'specific assumption under which this statement is true. *Only* if the full amount of indirect taxes is used by the government to render services, or to provide finished goods to ultimate consumers, or to add to productive capital in a way that would not be recorded by the private enterprises themselves as additions to their capital, need we add indirect taxes to the payments to secure the net aggregate product, at market prices. *Only* on these assumptions will factor costs fall short of net product at market values by the amount of indirect taxes. On the other hand, for alternatives (a) and (b) in Case 1, indirect taxes should not be added to factor costs because such addition would result in an exaggerated national product total; and the U.S. Department of Commerce 'net national product' (to use the new terminology) would contain an element of duplication and inflation that would not be corrected by any adjustment for price changes.

That factor costs and factor costs plus indirect taxes represent the same net aggregate product, but valued on two different bases, only on the restricting assumption that the taxes are used to turn out *final* goods, is a conclusion whose importance cannot be exaggerated. We shall find the same conclusion true of factor costs excluding all taxes (direct or indirect) compared with factor costs plus all taxes. To assume that the huge volume of taxes collected by governments in recent times represents services to individuals or additions to capital outside the private sphere implies an heroic overestimate of the welfare significance of government outlays. It is therefore important from the start to be clear as to the implications in this recent justification for the inclusion of indirect business taxes: that positive significance in terms of welfare or capital formation is attributed to *all* govern-

ment expenditures out of taxes, and that none of these expenditures represents costs of operation of society.

2. *Direct business taxes*

Two arguments have been adduced for including direct business taxes when estimating national income as the sum of income shares. (i) Where such shares, or factor costs, have been taken net of direct business taxes, the argument has been that since these taxes form part of final price they should be added to derive the full market value of net output. To cite Pigou again: 'What the Treasury receives in (the now abolished) excess profit duty and corporation tax, as operated in England, stands, however, on a different footing. It should be counted because the incomes of companies and individuals were reckoned as what was left *after* these taxes had been paid, so that, if the income represented by them had not been counted when in the hands of the Treasury, it would not have been counted at all.'¹ (ii) A second argument called for including them in factor costs – as specified by the official United Kingdom-United States-Canadian agreement mentioned above. The nature of the argument is briefly suggested by the statement that with this inclusion 'national income [using the term in its new meaning] will more accurately reflect factor costs of current production. . . . The rationale for the inclusion of corporate profits before taxes must rest ultimately, of course, on the incidence of taxes on profits. Although this question probably cannot be settled definitively, the weight of theoretical and statistical evidence is that changes in corporate profit tax rates affect profits after taxes more significantly than prices of output. Certainly, the high proportion of profits taken in taxes during the war period meant a substantial reduction in the income accruing to stockholders'.²

In the light of our discussion of indirect business taxes it should be clear that neither argument for inclusion of direct business taxes is acceptable. Whether or not the tax constitutes a cost and thus enters the market price of a good was found to be irrelevant in the case of indirect taxes; and is likewise irrelevant here. It all depends upon the use of the tax, i.e. whether

¹ *The Economics of Welfare*, 3rd edition, 1929, p. 41.

² See *National Income, Supplement to the Survey of Current Business*, July 1947, pp. 11–12. The other reason given, viz. the difficulty of computing net profit after taxes because of carry-over provisions, is a matter of statistical technique and is neglected here.

or not the use adds to final net output of the economy. The argument for inclusion under current factor costs rests upon the exact meaning of that term; and whether or not it is used interchangeably with the term 'net returns to factors'. If by factor costs we mean costs to private firms, then surely direct business taxes are to be included; but indirect business taxes are also costs to the private firms, and they may well be costs of factors located elsewhere. If, however, we are trying to get at 'net returns to factors', then obviously there is little ground for including direct business taxes in the factor account.

The point warrants a more explicit statement. The main argument for the specific usefulness of the 'factor cost' and 'market value' bases is that the former provides a total for which factor allocation may be more usefully gauged; and the latter a total for which allocation among various categories of finished output can be more usefully determined. But in measuring the relative magnitude of various factors we should presumably evaluate them in terms of what *net* returns these factors secure. Their gross costs are of little importance in gauging the relative economic weight, if such gross costs are affected in different ways by taxes, subsidies, etc. The true economic magnitude of factors is the net return, including the net monetary return from the enterprise plus the services provided by government. Adaptation of factors of production to competing uses within the productive system would naturally be to those real returns. In any rational economic calculation a choice among alternative uses of labor and capital is guided not by gross payments expected, but by net returns excluding all taxes and other elements from which no specific benefit is secured. It is for this reason that the discussion of various controversial items in the government sector here begins with the income shares net of all taxes; and then deals with the question of inclusion or exclusion of taxes by the use of criteria of what might be called ultimate productivity.

Once this position is accepted, the case of direct business taxes becomes parallel to that of indirect business taxes except that no rise in market prices results from the imposition of the former. The illustrative analysis is set out as Case 2, with the same six alternative assumptions concerning the use of taxes.

The results are naturally parallel. If taxes are used in rendering services to business – either in the form of labor or com-

CASE 2

Direct Business Taxes

Time Unit I

Production, private sector, quantity	100
Market price per unit	10
Value product (market)	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income paid out	200
Undistributed net profits	100
Taxes	0

Total value product 1,000

Production and receipts, government sector 0

Assumption: No government capital yielding final product

Total national product or income, final product approach	1,000
Total national product or income, sum of income shares	1,000

Time Unit II: Imposition of direct business taxes (e.g. corporate profit or excess profit tax)

Production, private sector, quantity	100
Market price per unit	10
Value product (market)	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income paid out	200
Undistributed net profits	20
Direct business tax	80

Total value product 1,000

Same alternative uses of taxes, (a)-(f), as in Case 1.

Total national product or income, final product approach, alternative uses of taxes:

Alternative Uses	Private Sector	Government	Total
(a) Current prices	1,000	0	1,000
Quantity	100	0	100
(b) Current prices	920	0	920
Quantity	92	0	92
(c) Current prices	1,000	80	1,080
Quantity	100	8	108
(d) Current prices	1,000	0	1,000
Quantity	100	0	100
(e) Current prices	1,000	80	1,080
Quantity	100	8	108
(f) Current prices	920	80	1,000
Quantity	92	8	100

Total national product or income, by income shares and taxes, alternative uses of taxes:

Wages and Salaries	Property Income	Undistributed Net Profits	Taxes	Total
(a) $700 + 80 = 780$	200	20	0	1,000
(b) $700 + 0 = 700$	200	20	0	920
(c) $700 + 80 = 780$	200	20	80	1,080
(d) $700 + 0 = 700$	200	20	80	1,000
(e) $700 + 80 = 780$	200	20	80	1,080
(f) $700 + 0 = 700$	200	20	80	1,000

modities – they should *not* be added to the sum of income shares excluding all taxes. Only if taxes are used for services to individuals – either in the form of labor or of commodities – or for additions to capital beyond the private sphere, should the taxes be added to all factor costs excluding taxes.

One curious implication of the analysis should be noted. The inclusion of direct business taxes in factor costs by the U.S. Department of Commerce may well result in an aggregate net product at factor cost that *exceeds* aggregate net product at market prices. In the extreme case that direct business taxes are the only revenue, that the government expenditures balance revenue, and that the taxes are used for services to business, the national income (the new definition, i.e. at factor cost) will exceed national product at market prices by the full amount of direct business taxes.

3. *Direct taxes on individuals*

Direct taxes on individuals are customarily included in income shares in the estimates of national income that use this approach. The usual basis is that such taxes are part of the factor cost of production and of the market prices of goods turned out.

But in the light of the preceding discussion, direct taxes on individuals are in the same category as all other taxes. If our aim is a national income total that represents correctly the market price of final net output, the treatment of any tax is contingent upon the character of government activity financed with it. Consequently, the illustrative analysis of direct taxes on individuals in Case 3 provides an exact parallel to those of indirect and direct business taxes in Cases 1 and 2. Only if direct taxes paid by individuals represent cost of final output

CASE 3

Direct Taxes on Individuals

Time Unit I

Production, private sector, quantity	100
Market price per unit	10
Value product (market)	1,000

Breakdown of value product, private sector, by income shares and taxes:

	<i>Income excl. taxes</i>	<i>Taxes</i>	<i>Income incl. taxes</i>
Wages and salaries	700	0	700
Property income	200	0	200
Undistributed net profits	100	0	100
Indirect taxes		0	

Total value product	1,000
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Production and receipts, government sector	0
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Assumption: No government capital yielding final product

Total national product or income, final product approach	1,000
Total national product or income, sum of income shares	1,000

Time Unit II: Imposition of direct taxes on individuals (e.g. individual income taxes)

Production, private sector, quantity	100
Market price per unit	10
Value product (market prices)	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries, excluding tax	600
Property income, excluding tax	150
Undistributed profits	100
Direct taxes on individuals	150

Total value product	1,000
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Same alternative uses of taxes, (a)-(f), as in Case 1.

Total national product or income, final product approach, alternative uses of taxes:

Alternative Uses	Private Sector	Government	Total
(a) Current prices	1,000	0	1,000
Quantity	100	0	100
(b) Current prices	850	0	850
Quantity	85	0	85
(c) Current prices	1,000	150	1,150
Quantity	100	15	115
(d) Current prices	1,000	0	1,000
Quantity	100	0	100
(e) Current prices	1,000	150	1,150
Quantity	100	15	115
(f) Current prices	850	150	1,000
Quantity	85	15	100

Total national product or income, by income shares and taxes, alternative uses of taxes.

All income shares *exclude* taxes.

Wages and Salaries	Property Income	Undistributed Net Profits	Taxes	Total
(a) $600 + 150 = 750$	150	100	0	1,000
(b) $600 + 0 = 600$	150	100	0	850
(c) $600 + 150 = 750$	150	100	150	1,150
(d) $600 + 0 = 600$	150	100	150	1,000
(e) $600 + 150 = 750$	150	100	150	1,150
(f) $600 + 0 = 600$	150	100	150	1,000

undertaken by the government, i.e. of services and goods flowing to ultimate consumers or of additions to capital not already covered in the business sector, should those taxes be added to income shares in arriving at the national income total. But if they are used to finance indirect output, a far from improbable occurrence, they should not be added to income shares taken net of all taxes.

All the arguments adduced in the previous section are relevant here and need not be repeated. But at this juncture we note a related point of importance in income measurement. If income shares are to be taken net of direct taxes, on the ground that the latter may or may not in fact represent net returns to factors, we should reduce income shares even further by the exclusion of any parts that might represent occupational or business expenses. If a wage includes the cost of work-clothing or personal tools – an amount that varies from one job to another because of different requirements for such purely business equipment – should we not take wages net of these amounts, so as to gauge correctly the net return to factors *qua* factors?

The argument for excluding such occupational expense items, when they are not in fact excluded in the statistics of income payments, is valid; and there is correspondingly an argument for excluding such equipment from the aggregate of final net output of the economy. Were the data available, such exclusion should become standard practice in estimating national income.

At any rate, the practical difficulties of refining the totals of income shares, excluding all taxes, so that they do represent clearly the real net returns to factors, are no basis for not excluding taxes. The latter are segregable with the available data; and if, in order to secure a correct estimate of national income,

such taxes should be excluded and the net output of government activity estimated directly, there is no reason for not doing so just because the result is only an approximate measure of net final output.

4. *Government product out of savings*

In discussing treatment of various taxes we dealt with classes of government activity that involve purchase of goods and services. The use of taxes for other types of government expenditures, i.e. transfers (either as subsidies to business, or transfers to individuals and firms within the country, or as subsidies or loans to foreign countries), is still to be considered. Before we pass to these classes of government expenditures we must, however, consider the treatment of government purchases of goods financed out of sources other than taxes.

From the standpoint of the present analysis such non-tax sources fall into two distinct types: government activity financing that causes no inflation, i.e. no rise in the price level, and government activity financing that causes inflation. The former is typified by financing out of borrowing, with funds coming from current savings of individuals and business enterprises; the latter by government financing *via* the money printing press, under conditions of such relatively full employment of resources that the issue of money more than offsets current idle savings of individuals and business. It should be noted that in reality borrowing by government may represent inflationary, and printing money non-inflationary financing. We discuss the non-inflationary financing under Case 4, the inflationary under Case 5.

Since the illustrative analysis uses the same alternative assumptions concerning government activity, and the same figures concerning the activity in the initial situation in the private sector, the effect of introducing the government as a producer upon the *quantity* volume of net output is the same in the case of borrowing as it was in the case of taxes. If government uses the proceeds to employ additional resources to turn out final output, the real product increases. If government uses the proceeds to *divert* part of existing stocks or current output to turn out final products, real product does not change. If government uses the proceeds to divert part of existing stocks or current output to provide intermediate output, there is a corresponding decline in real product. The magnitude of the real product, in our analysis, is

CASE 4

Government Product Out of Savings (Borrowing from Individuals and Business)

Time Unit I

Production, private sector, quantity	100
Market price per unit	10
Value product (market)	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income	200
Undistributed net profits	100
Taxes	0

Total value product 1,000

Production, government sector 0

Assumption: No government capital yielding final product

Total national product or income, final product approach . . . 1,000

Total national income or product, sum of income shares . . . 1,000

Time Unit II: Introduction of government production (or purchases) financed out of savings. Assumption: Individuals and business save 200 units and transfer it immediately to government, which proceeds to spend it and thus put it back into the old channels of circulation.

Production, private sector, quantity	100
Market price per unit	10
Value product, private sector	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income	200
Undistributed net profits	100
Taxes	0

Total value product 1,000

Note that no interest receipts on loans to government are assumed.

Using the same alternatives of use of money by government as in Case 1, we get the following estimates of total national product or income on the final product approach:

Alternative Uses	Private Sector	Government	Total
(a) Current prices	1,000	0	1,000
Quantity	100	0	100
(b) Current prices	800	0	800
Quantity	80	0	80
(c) Current prices	1,000	200	1,200
Quantity	100	20	120
(d) Current prices	1,000	0	1,000
Quantity	100	0	100
(e) Current prices	1,000	200	1,200
Quantity	100	20	120
(f) Current prices	800	200	1,000
Quantity	80	20	100

Total national product or income, by income shares and taxes, different alternatives as to government product out of savings:

Wages and Salaries	Property Income	Net Profits	Adjusted for unproductive use of Resources	Total
(a) $700 + 200 = 900$.	200	100	-200	1,000
(b) $700 + 0 = 700$.	200	100	-200	800
(c) $700 + 200 = 900$.	200	100	0	1,200
(d) $700 + 0 = 700$.	200	100	0	1,000
(e) $700 + 200 = 900$.	200	100	0	1,200
(f) $700 + 0 = 700$.	200	100	0	1,000

determined only by the initial assumptions concerning the private sector (the same for each case) and by the different alternatives concerning the character of government activity as a producer (the same six alternatives for each case); and is *not* affected by whether the government finances its activity as a producer out of indirect or direct taxes, borrowing, or printing money.

The method of financing does affect the current prices at which net product must be valued. Thus the introduction of indirect taxes raised the price level over the initial situation; whereas in the cases of direct taxes and of non-inflationary borrowing or money printing, the prices remain unchanged from time unit I to II.

The methods of financing also affect the analysis in the sense of indicating what particular item in the government sector should be considered for inclusion, in addition to income shares net of all taxes. In financing out of taxes we must consider whether or not to *add* the taxes. In financing out of borrowing, the question, as indicated by the analysis in the illustration, is whether or not to *subtract* the borrowing from the income shares, taken net of all taxes.

If borrowing is used to finance additional net output by government, the income shares, net of all taxes, represent correctly the current market value of output. For in that case any additional employment of resources is matched by additional final output; and any diversion from stocks or current output is matched by final output under government auspices. But if borrowing is used by government to provide intermediate output, i.e. services that do not represent more goods to consumers or more capital, then any additional factors that may have been

employed fail to add to final output; while any stocks or current output that have been diverted represent a diminution of current net output, with the same factors, without an offsetting increase in net final output in the government sector. In this case, represented by alternatives (a) and (b), the sum of income shares, net of all taxes, is *greater* than the current value of net final output – greater by the amount of borrowing that was spent on what, from the standpoint of the current year's output, was an unproductive use of resources. It is for this reason that the amount of borrowing appears with a negative sign, under the heading 'adjustment for unproductive use of resources' in the allocation of national income by shares in illustrative Case 4.

We see here another instance in which national income at 'factor cost', as the term has been used in the current official estimates in the United States and the United Kingdom, may exceed national income at market prices. This will be the case if government expenditures on intermediate output, out of non-inflationary borrowing, are larger than indirect taxes; or, if the government expenditures on intermediate output, out of both non-inflationary borrowing and direct business taxes, are larger than indirect taxes – even though indirect taxes are all spent on final output.

5. Government product out of inflation

Case 5 combines the features of that relating to indirect taxes (Case 1) and the one just discussed relating to financing of government as producer out of non-inflationary borrowing (Case 4). As with indirect taxes, inflationary financing of government results in a rise in prices from time unit I to time unit II. As with borrowing, inflationary financing may result in an unproductive use of resources, in the sense that either factors or goods are diverted without any corresponding increase in total net output of the economy. In the latter situation, exemplified by alternatives (a) and (b), a negative adjustment for unproductive use of resources, equal to the amount of the government's inflationary financing, appears in the distribution of national income by income shares.

As in all the cases discussed, the analysis is oversimplified in that it does not allow for any effects of price changes, or of government's appearance on the scene as a producer, on the supply and demand of factors and of products in the private

CASE 5

*Government Product Out of the Printing Press
or Money Balances (Inflation)*

Time Unit I

Production, private sector, quantity	100
Market price per unit	10
Value product (market)	1,000

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income	200
Undistributed net profit	100
Taxes	0
Total	1,000

Production, government sector	0
Assumption: No government capital yielding final product	
Total national product or income, final product approach	1,000
Total national product or income, sum of income shares	1,000

Time Unit II: Introduction of government production financed by printing paper money. Assumption: Additional flow of money is spent as before, with no savings by individuals or business. There is a consequent rise in prices, accruing completely and exclusively to entrepreneurs (undistributed net profits). Hence:

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700
Property income	200
Undistributed net profits	300
Taxes	0
Total	1,200

With the same alternative uses of government money as in Case 1, we get:
National product or income, final product approach, alternative uses of government money.

Alternative Uses	Private Sector	Government	Total
(a) Current prices	1,200	0	1,200
Quantity	100	0	100
(b) Current prices	1,000	0	1,000
Quantity	83.3	0	83.3
(c) Current prices	1,200	200	1,400
Quantity	100	16.7	116.7
(d) Current prices	1,200	0	1,200
Quantity	100	0	100
(e) Current prices	1,200	200	1,400
Quantity	100	16.7	116.7
(f) Current prices	1,000	200	1,200
Quantity	83.3	16.7	100

National product or income, by income shares and taxes, different alternatives as to use of government money:

Wages and Salaries	Property Income	Undistributed Net Profits	Adjustment (as in Case 4)	Total
(a) $700 + 200 = 900$	200	300	-- 200	1,200
(b) $700 + 0 = 700$	200	300	-- 200	1,000
(c) $700 + 200 = 900$	200	300	0	1,400
(d) $700 + 0 = 700$	200	300	0	1,200
(e) $700 + 200 = 900$	200	300	0	1,400
(f) $700 + 0 = 700$	200	300	0	1,200

sector. Since the existence and functions of government as a producer (or in subsequent cases as an agency that redistributes the flow of money payments) have, in fact, substantial effect on the structure of production and of demand, the analysis falls far short of reality. But it is next to impossible, in national income measurement, to estimate the effects of any existing institution, or of changes in the scope of its activity, in all its ramifications. We are concerned here with measurement of final results of economic activity, regardless of what particular factors and causes have tended to produce the result. We are, therefore, interested in the controversial items in the government sector only in so far as they do or do not *represent* final product; not in so far as they signify forces that may have *caused*, fully or in part, the net output of the economy to attain the magnitude and structure which it in fact attained.

6. *Subsidy to business*

The five cases considered so far cover the different possible classes of government financing: taxes and non-inflationary or inflationary non-tax sources. The five classes do not exhaust the great variety of specific types of government revenue, since the latter may include many others ranging from special assessments and fees to confiscation of property. But a great proportion of these non-tax revenues are connected with the government as a business entrepreneur and hence are not relevant to government in the special meaning of the term used here. Many others fall under one or another of the five types of financing or represent (as in the case of confiscation) a disguised tax.

But we have discussed so far only such government expenditures as involve the government as a producer. Government, however, is also a transfer agency of substantial dimensions. It

may use its revenue to transfer means of payment to the country's business enterprises, with the intention of reducing the prices of the enterprises' product to the purchasers; it may transfer means of payment to individuals or firms in the country without subsidy implications; or it may either lend or give means of payment to foreign countries. Of the list just cited, the only case covered so far is government lending to foreign countries with an expectation of return – a case of genuine loan rather than of gift or subsidy. This type of loan may be treated as an addition to the country's capital, not recorded anywhere within the private business sector as a capital addition; and hence represents a species of alternatives (e) and (f) in the five cases considered so far – i.e. use of factors or of stocks and current production to add to the country's capital under the government's auspices. We should note, however, that in this case it is not the amount of the loan granted to the foreign country, but the amount of the loan actually *drawn upon* that should be entered under government expenditures and used in passing from the sum of income shares excluding all taxes to net output at current prices.

The other types of government expenditures, which are in the nature of transfers, are still to be discussed. We may classify them for our analysis into three distinct groups: (i) price reduction subsidies to business firms considered part of the country's economy, i.e. all domestic firms, whether their plant is actually located within the country or abroad (in which case they belong to the country's residents); (ii) transfers to individuals or firms within the country – relief payments, special bonuses, repayment of government debt, or, if one interprets the government debt as a 'deadweight' debt, interest payments on government debt; (iii) transfers to foreign countries – free subsidies to foreign governments, to foreign business firms, or to foreign individuals.

In the earlier discussion of treatment of government *revenues* of various types we had to decide the cases on the basis of what the government did with the proceeds, i.e. the type of activity the proceeds were used to finance. Now that we know in advance what government does with the proceeds – in the present case it grants them as a subsidy to domestic business – the analysis must recognize different *sources* of the proceeds. And since we distinguished in our earlier discussion five types of financing, three representing tax and two representing non-tax sources,

CASE 6

Government Subsidy to Domestic Business, Alternative Methods of Financing Subsidies

(a) Subsidy out of indirect business taxes

Time Unit I: Assume two industries, X and Y, comprising the whole economy. The production of the economy, all private sector, is then as follows:

	X	Y	Total
Quantity in units	100	50	150
Market price	10	10	10
Value product	1,000	500	1,500

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700	350	1,050
Property income	200	100	300
Undistributed net profits . .	100	50	150
Taxes	0	0	0

Total	1,000	500	1,500
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Total national product or income, final product approach	1,500
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Total National product or income, sum of income shares	1,500
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Time Unit II: Assume that an indirect business tax of 100 units was imposed on products of industry X and the proceeds used as a subsidy to industry Y: and that the corresponding shift in relative prices of products X and Y has no effect on the relative demand or supply of the two products.

Consequently, the product in Time Unit II will be:

	X	Y	Total
Quantity	100	50	150
Market price	11	8 (weighted mean)	10
Value product	1,100	400	1,500

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700	350	1,050
Property income	200	100	300
Undistributed net profits . .	100	50	150
Indirect taxes	100	0	100
Subsidy	0	-- 100	- 100

Total	1,100	400	1,500
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Total national product or income, final products approach:

$$1,100 + 400 = 1,500$$

Total national product or income, sum of income shares:

$$1,050 + 300 + 150 = 1,500.$$

(b) Subsidy out of direct business taxes

Time Unit I: Same as under (a)

Time Unit II: Assume that a direct business tax of 100 units (e.g. corporate profit tax) was imposed on industry X and the proceeds used as a subsidy to industry Y; and that the corresponding shift in relative prices of products X and Y had no effect on the relative demand or supply of the two products. Consequently, the product in Time Unit II will be:

	X	Y	Total
Quantity	100	50	150
Market price	10	8 (weighted mean)	9.33
Value product	1,000	400	1,400

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	700	350	1,050
Property income	200	100	300
Undistributed net profits	0	50	50
Direct business tax	100	0	100
Subsidy	0	-100	-100
Total	1,000	400	1,400

Total national product or income, final product approach:

$$1,000 + 400 = 1,400.$$

Total national product or income, sum of income shares:

$$1,050 + 300 + 50 = 1,400.$$

(c) Subsidy out of direct taxes on individuals

Time Unit I: Same as under (a) - sum of the two industries.

Time Unit II: Assume that a tax of 150 units was imposed on individual income recipients and paid out as a subsidy; and that the corresponding lowering of price had no effect on supply and demand.

Consequently, production in Time Unit II will be:

Quantity	150
Market price	9
Value product	1,350

Breakdown of value product, private sector, by income shares and taxes:

	<i>Excl. tax</i>	<i>Tax</i>	<i>Incl. tax</i>
Wages and salaries	950	100	1,050
Property income	250	50	300
Undistributed net profits	150	0	150
Indirect taxes	0	0	0
Total	1,350	150	1,500

Total national product or income, final product approach: 1,350

Total national product or income, sum of income shares: 950 (wages and salaries excluding tax) + 250 (property income excl. tax) + 150 (undistributed profits excl. tax) = 1,350

(d) Subsidy out of borrowing (savings of individuals and enterprises)

Time Unit I: Same as under (a) - sum of the two industries.

Time Unit II: Assume that the government, having induced individuals and enterprises to save 150 and lend it to the government (at no interest), immediately expends it as a subsidy to business; and that the resulting decline in market price has no effect on supply and demand. Then production in Time Unit II will be:

Quantity in units	150
Price	9
Value product (market)	1,350

Breakdown of value product, private sector, by income shares and taxes:

Wages and salaries	1,050
Property income	300
Undistributed net profits	150
Taxes	0
Subsidy	-150
Total	1,350

Total national income or product, final product approach	1,350
Total national product or income, sum of income shares: 1,050 |	
300 + 150 - 150 (subsidy)	1,350

(e) Subsidy out of printing money (inflation)

Time Unit I: Same as under (a) – sum of the two industries.

Time Unit II: Assume that the government prints 150 units and hands them out as a subsidy to business; that the operation has no effect on supply and demand, and that the offsetting price (on account of inflation) and price decline (on account of subsidy) merely result in a corresponding increase of the undistributed net profit. Hence the product account in Time Unit II will be:

Quantity in units	150
Price	10
Value product	1,500

Breakdown of value product, private sector, by income shares, taxes, etc.:

Wages and salaries	1,050
Property	300
Undistributed net profits	300
Subsidy	150

Total 1,500

Total national income or product, final product approach	1,500
Total national income or product, sum of income shares: 1,050 |	
300 + 300 - 150 (subsidy)	1,500

these five types now constitute five alternative sources out of which subsidies to business may be financed; and are so distinguished in the illustrative analysis of Case 6.

There is no need to repeat here the assumptions and steps in this analysis. We treat directly only the case of subsidies to firms engaged in production at home which directly affect either the prices or undistributed net profit; (or payments to other factors) within the country. A subsidy granted to a firm that engages in sales largely abroad, if its major effect is to reduce the price to foreign buyers, is in fact a subsidy to the latter – i.e. a transfer to a foreign country (Case 8) and does not belong to the analytical case presently under discussion.

With this qualification the conclusions concerning the treatment of business subsidies in estimating national income by sum of income shares (excluding all taxes) can be briefly indicated. If subsidies are financed out of taxes of *any* kind (whether indirect, direct business, or direct taxes on individuals), they should neither be added to nor subtracted from income shares excluding taxes. Subsidies financed out of non-tax funds, whether non-inflationary or inflationary, should be *subtracted* from the sum of income shares excluding all taxes. To put it

differently: if business taxes are to be added to sums of income shares (net of taxes) in order to secure a correct estimate of net output at current prices, the addition of such taxes must always be *after* subtraction of business subsidies. And to the extent that subsidies are out of non-tax sources, they should be subtracted from the net income shares themselves.

7. Domestic transfers

Domestic business firms may receive payments from the government which are neither subsidies nor payments by government for goods purchased. They may be in the nature of payment on government debt – either interest or principal.¹ Domestic individuals may also receive payments from government that do not represent compensation for any services rendered by them or their capital to the government: repayment of government debt, a payment of interest (in the ‘deadweight’ interpretation); bonuses, e.g. veterans’ bonuses, or relief and assistance payments where no work is required.

These domestic transfers (see Case 7) are analyzed as were subsidies to domestic business. The effects, however, are different, because transfers, unlike subsidies, do not reduce prices of goods produced under business auspices or increase income shares. On the contrary, in two of the alternative sources of financing transfers the transfers raise the market prices of net final output; and in none of the five alternatives does the sum of income shares, net of all taxes, show any increase from time unit I to time unit II.

In consequence, while we had to decide when to *subtract* and when not to subtract business subsidies from the sum of income shares, in the case of transfers to individuals we have to decide when to *add* and when not to add them to the sum of income shares. The general answer is provided by the illustrative case.

¹ We do not deal here with the controversial question as to whether interest payments on government debt – particularly war debts – are transfers or factor costs. In fact, in the treatment suggested by the present analysis, the interpretation of interest on war debts, for example, makes no difference *so long* as it is not (as it cannot be) interpreted as final output – i.e. services to consumers or addition to capital. On that condition, if interest payments are included under income shares, they would not appear under transfers and would not be *added* if paid out of taxes (see Case 7); or if not included under income shares, they would be included under transfers and would be added if paid out of taxes. If interest payments are out of non-tax sources (i.e. out of deficit, see section 9 below) they would not appear in the total at all; for whether included under income shares or under transfers, they would in either case be offset by subtraction of deficits.

CASE 7

Domestic Transfers

Time Unit I: Assume private sector coincident with the whole productive economy of the same magnitude, as in Case 6:

Quantity in units	150
Market price	10
Value product	1,500

Breakdown of value product, private sector, by income shares and taxes (no taxes at all):

Wages and salaries	1,050
Property income	300
Undistributed net profits	150
Taxes	0

Total 1,500

Total national income or product, final product approach 1,500

Total national income or product, sum of income shares 1,500

Time Unit II: Assume that the government pays to domestic individuals and firms 150 units as pure transfers. There follow alternative assumptions concerning the financing of these transfers, the alternatives being similar to those distinguished for Case 6:

- Financed out of indirect business taxes.
- Financed out of direct business taxes.
- Financed out of direct taxes on individuals.
- Financed out of borrowing (from individuals and enterprises).
- Financed out of inflation.

We also retain the same assumptions as in Case 6 concerning lack of effect of taxation, transfers, and price changes on supply and demand of goods.

National income or product, final product approach, alternative assumptions as to financing of transfers:

	Quantity in Units	Price	National Income or Product
(a)	150	11	1,650
(b)	150	10	1,500
(c)	150	10	1,500
(d)	150	10	1,500
(e)	150	11	1,650

The breakdown of income shares etc. in such a way as to equal national product, by final product approach, is as follows:

Total national income or product, sum of income shares, etc., alternative assumptions as to financing of transfers.

All income shares given below exclude all taxes.

	Wages and Salaries	Property Income	Undistributed Net Profit	Transfers	Total
(a)	1,050	300	150	150	1,650
(b)	1,050	300	0	150	1,500
(c)	950	250	150	150	1,500
(d)	1,050	300	150	0	1,500
(e)	1,050	300	300	0	1,650

Whenever the transfers are so financed as to increase the market prices of the economy's net output, the transfers (or, what is the same thing, the indirect taxes or inflationary sources used to finance them) are to be added to the sum of income shares (net of all taxes) to secure a correct estimate of national income. Whenever the transfers to individuals are so financed as not to increase market prices (i.e. out of direct business taxes, direct individual taxes, and non-inflationary borrowing), the sum of income shares, without adding the transfers, yields the correct total of national income at current prices. As in the case of business subsidies, the transfers should be counted at the point of actual disbursement of the money by the government to the recipient.

8. Transfers to foreign countries

In the case of government subsidy to a foreign country it makes no difference to the national income accounting of the lender country whether the subsidy is extended to the foreign government, the foreign business firm, or foreign individuals. But it does make a difference how we interpret the subsidy from the viewpoint of the lender country. If it is a matter of free gift, without any consideration of immediate and ultimate benefit for the lender country, the case becomes completely identical with that of transfers to a country's own citizens and residents. In that interpretation the lender country's national income, i.e. net output at market prices, includes also the output that is purchased by foreigners with the means of payment secured by the subsidy; and as will be seen from the illustrative analysis under Case 8, the breakdown of the national income by income shares is identical with that of Case 7 – it must include the subsidy if the latter is financed out of indirect taxes or out of inflationary non-tax sources, and disregard (but not subtract) the subsidy if it is financed out of direct taxes or non-inflationary borrowing.

But it may be more realistic to consider at least some subsidies to foreign countries not gifts free of ulterior considerations, but as designed to assist the foreign country on policies which the lender country considers beneficial to its own position in the world. In that case the subsidy is like an expenditure by the lender country on its own military establishment, i.e. an intermediate product of use in maintaining or expanding the coun-

CASE 8

Government Subsidy to Foreign Countries

Time Unit I: Same as under Case 7.

Time Unit II: Assume that the government grants free credit to foreign countries of 150 units as a gift and that foreign countries use the 150 units to import to that amount during Time Unit II. There follow alternative assumptions concerning the financing of this subsidy, the alternatives being the same as for Cases 6 and 7, viz. (a) out of indirect business taxes; (b) out of direct business taxes; (c) out of direct taxes on individuals; (d) out of non-tax sources, non-inflationary; (e) out of inflationary sources. We also retain the same assumptions as in Cases 6 and 7 concerning lack of effects of taxation, transfers, and price changes on supply and demand of goods.

Then national income or product, final product approach, will be:

	Quantity in Units		Price	Net Output	
	Domestic	Given to Foreign Country		Domestic	Given to Foreign Country
(a) .	136.4	13.6	11	1,500	150
(b) .	135	15	10	1,350	150
(c) .	135	15	10	1,350	150
(d) .	135	15	10	1,350	150
(e) .	136.4	13.6	11	1,500	150

Distribution of national income or product by income shares, excluding all taxes, is then:

	Wages and Salaries	Property Income	Undistributed Net Profits	Foreign Subsidies	Total
(a) .	1,050	300	150	0	1,500
(b) .	1,050	300	0	0	1,350
(c) .	950	250	150	0	1,350
(d) .	1,050	300	150	-150	1,350
(e) .	1,050	300	300	-150	1,500

try's position *vis-à-vis* other countries. If so, the lender country's national income as a total of net output must exclude the goods that were purchased by the foreign country with the proceeds of the subsidy. And the accounting, as shown in Case 8, becomes on that condition different from Case 7.¹

The subsidy to a foreign country, interpreted as an expenditure on intermediate product, should not be added to the sum

¹ On this interpretation flow of finished products to consumers or additions to stock in the borrower country would *not* be counted in the final product of the lender country; and might also be excluded from the national income of the borrower country, since it is *not* a product of its economic activity. The strict application of the *national* viewpoint thus results in omitting from *world* income elements that unquestionably belong to it as a means of net product flow to world population. This is one of several paradoxes that may be revealed when we try to add the national income estimates into a consistent world whole.

of income shares if it has been financed out of taxes; and should be *subtracted* if it has been financed out of sources other than taxes – regardless of whether these non-tax sources are non-inflationary or inflationary.

What is true of the interpretation of subsidy presented in Case 8 is also true of such transfers to foreign countries as represent current payments on legal obligations of a given government to foreign countries. This species of transfers, unlike transfers to domestic firms and individuals, indicates that part of the productive factors operating within the country is owned outside of it. Since national income is net output of a country's economy only to the extent that the productive factors are owned by the country's citizens and residents, it cannot include such part of current output *within* the country as is associated with factors owned outside. Hence, national income must exclude current interest charges on government debt owned abroad – *whether*, in fact, such payments have been made or were accrued to increase indebtedness abroad.

As distinct from the domestic case and from foreign subsidy, interest obligations by a government to foreign countries should appear in Case 8, whether actually paid or not; and, unlike Case 7, *repayment* of principal to foreign holders of government debt is not a transfer but an addition to government capital, i.e. falls under the alternatives (e) and (f) in Cases 1 to 5.

9. *Summary of analysis*

We now summarize the analytical cases discussed and observe the treatment of various sectors of government activity in passing from the sum of income shares (net of all taxes) to a correct estimate of national income, taken as net final output at market prices. Cases 1 to 8 are brought together, with foreign subsidy interpreted as expense on intermediate products.

In this summary, which merely restates the conclusions of our discussion, the last three columns cannot be handled in any empirical work, because the decision rests upon source of funds; and it is impossible to say whether, in fact, transfers or subsidies have been made out of taxes or out of other sources. We must therefore restate the conclusions in columns 6–8 to permit their application in combination with the conclusions in columns 1–5.

To do this we first consider business subsidy as a charge against business taxes, on the cogent ground that *net* payments

Summary of Cases 1-8

(The column numbers are identical with the number of the analytical case)

Sum of Income Shares (excluding all taxes)	Government Expenditures on Goods out of:					Transfers:		
	Indirect Taxes (1)	Direct Business Tax (2)	Direct Tax on Ind. (3)	Non-tax		Domestic	To Individuals (7)	Foreign All (8)
				Non- inflationary (4)	Inflationary (5)	Business Subsidies (6)		
Always add:	Add if used	Add if used	Add if used	Do not add	Do not add	Do not add	Add if out of	Do not add if
Wages	for final out-	for final out-	for final out-	if used for	if used for	if out of	taxes	out of taxes
Salaries	put	put	put	final outp.	final outp.	bus. taxes		
Dividends							Do not add	Otherwise
Interest	Otherwise do	Otherwise do	Otherwise do	Otherwise	Otherwise	Add if out	if out of	subtract
Rent	not add	not add	not add	subtract	subtract	of tax on	non-tax	
						indivi.	funds	
Undist. net						Subtract if		
profits and						out of non-		
losses of						tax funds		
business								
firms								

INCOME AND WEALTH

by the whole business sector to government are not the gross total of business taxes, but only the excess over subsidies drawn upon. We also assume, realistically, that business taxes *exceed* business subsidies; which permits us to treat Case 6, in combination with Cases 1 and 2, as indicating that business subsidies are not to be added; and that final products out of business taxes are always sufficiently less than those taxes to allow an offset for business subsidies. Next we define several types of government surplus and deficit as follows:

- | | |
|--|--|
| I Surplus or deficit on current and debt repayment accounts. | Excess or shortage of all taxes over all (government outlays, including repayment of debt). |
| II Surplus or deficit on total current account. | Excess or shortage of all taxes over all (government outlays, excluding repayment of debt). |
| III Surplus or deficit on domestic current account. | Excess or shortage of all taxes over (government outlays excluding repayment of debt and excluding foreign transfers). |
| IV Surplus or deficit on goods account. | Excess or shortage of all taxes over (government outlays on goods and services, i.e. total government outlays excluding repayment of debt, excluding foreign transfers, and excluding domestic transfers). |

If there is a surplus on I, there must be a surplus on II, III and IV unless the government receives transfers from foreign countries or domestic sources rather than disburses them. These cases, however, can be treated simply. Transfers from foreign countries represent free additions to goods at the disposal of a given country, but are not a result of the working of its economy and should, perhaps, be excluded from national income. However, if they *are* to be added to national income, the decision of how much to add depends upon what part of these transfers

are used to provide final net output – goods for consumers or additions to capital. When transfers are from domestic sources they have already been accounted for; and as a matter of fact appear in our analysis as non-inflationary or inflationary non-tax sources of government financing. We may therefore proceed with the discussion on the more realistic assumption that transfers are to (rather than from) foreign countries and to (rather than from) domestic firms and individuals.

On that assumption the following situations may be distinguished:

A. There is a surplus under I (and hence surpluses under II, III and IV).

In this case government expenditures on goods are all out of taxes and the entries under columns 4 and 5 in the summary above are 0; domestic transfers (column 7) should be added, since they are out of taxes; and foreign transfers should be neither added nor subtracted. National income is then: (income shares, excluding all taxes) plus (net final output by government, including additions to government capital represented by reduction of foreign held debt) plus (domestic transfers, including repayment of debt). No account is taken of the surplus, since it has not entered the nation's net final output at current prices.

B. There is a deficit under I and a surplus under II (hence a surplus under III and IV).

In this case some of the repayment of debt is out of deficit; which means that if it is either to foreign countries or domestic holders, that part which is out of deficit should not be added to final product of government or to domestic transfers (see columns 4, 5 and 7). If we include these last two items fully we must make the adjustment by subtracting the deficit. Hence national income equals: (income shares, excluding all taxes) plus (all net final output of government, including reduction of foreign-held debt) plus (domestic transfers, including repayment of debt) minus (deficit under I).

C. There is a deficit under II, but a surplus under III (and hence a deficit under I and a surplus under IV).

Here the treatment is exactly as under B, except that foreign transfers are to be subtracted in so far as they are financed not

out of taxes but out of *deficit*. If, therefore, we add income shares, final net output of government, and domestic transfers, we have to subtract the deficit. The formula for national income is then as under B, but subtracting the deficit under I (which is now larger).

D. There is a deficit under III but a surplus under IV (and hence deficits under I and II).

Here the treatment is as under C, except that all foreign transfers are to be subtracted and not all domestic transfers are to be added, since only part of them are out of taxes. This subtraction of foreign transfers and partial exclusion of domestic transfers is obviously accomplished if we reduce the sum of income shares excluding taxes, final net output of government, and domestic transfers by the full deficit under I.

E. There is a deficit under IV (and hence deficits also under I, II and III).

Here the treatment is as under D, except that domestic transfers are to be fully omitted (since they are all out of deficit) and not all government expenditures on goods are to be included, since part of them is out of deficit (i.e. non-tax sources). In this case (see columns 4 and 5 of the summary) final output is not to be added, and intermediate output is to be subtracted. If we *add* all final output by government financed out of deficit, then we should subtract the full deficit on goods account and not only that part of it that goes on intermediate product. Hence, in order to subtract all foreign transfers, to omit all domestic transfers, and to subtract only that part of government expenditures on goods that is used to produce intermediate output out of deficit, all we need do is reduce the sum of income shares excluding all taxes, all final net output of government, and all domestic transfers by the full deficit under I.

Thus in each of the possible situations with reference to government surplus and deficit the formula for deriving national income from the sum of income shares is exactly the same. National income equals:

(sum of all income shares, excluding all taxes) plus
(final net output of government at cost, including repayment of foreign-held debt) plus

(all domestic transfers and subsidies, including repayment of debt) minus
(deficit on total current and repayment account).

Deficit in this formula means shortage of revenues compared with all government outlays, including all transfers and repayment of debt. In case of surplus *no* addition is made.

If it is desirable to exclude repayment of debt, which means excluding it from government outlays, the formula stands, except that the deficit referred to is replaced by deficit on total current account; repayment of foreign-held debt is excluded from final net output of government; and domestic transfers exclude any payments that represent amortization of domestically held debt.

INTERTEMPORAL COMPARISONS OF REAL NATIONAL INCOME: AN INTERNATIONAL SURVEY¹

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I. INTRODUCTION

IN the rapidly expanding literature on national income the problems involved in intertemporal comparisons of real national income have not yet been very thoroughly discussed. In recent years the interest in such comparisons has been growing. For various purposes, and particularly where the countries devastated by the war are concerned, there is a need for comprehensive figures showing how the present aggregate output of goods and services compares with the pre-war output of the economy. National income figures expressed in current prices cannot be used for this purpose as they reflect changes in prices as well as in output. To eliminate price fluctuations national income must be computed in real terms, or to use a terminology which is more readily understood in some non-English-speaking countries, national income must be expressed in constant prices. We shall see that different meanings have been attached to this term.

Estimates of real national income are available for a number of countries, including Argentina, Australia, Austria, Bulgaria, China, Denmark, France, Greece, Hungary, India, Italy, the Netherlands, Netherlands Indies, Norway, Palestine, the Philippines, Poland, Sweden, Switzerland and Turkey. In the United Kingdom consumers' expenditure, an important component of the national expenditure, is measured in constant prices, and unofficial estimates of all other components of the national income expressed in real terms have also been published.² In the United States evaluations of real national income are being made by the National Income Division of the Department of Commerce, and preliminary figures have been published in the Economic Reports issued by the Council of Economic Advisers.

¹ The present paper is an extended and revised version of a preliminary draft read before the Econometric Society, Cleveland, Ohio, 28th December 1948.

² Dudley Seers, 'The National Product Before and After the War', *Bulletin of the Oxford University Institute of Statistics*, Vol. X, No. 10, October 1948.

A quick survey of this material reveals striking differences in the methods used. Disregarding variations in statistical practices, which may be explained by the peculiarities of basic data available, three main groups of methods may be distinguished:

(a) National income estimates may be expressed in constant prices by 'deflating' the totals by an appropriate price index, such as an index of cost of living, or an index of wholesale prices.

(b) The components of the national expenditure may each be deflated by an appropriate price index, and the series thus obtained combined in one series showing national expenditure in constant prices. If sufficient statistical data on quantities are available the method may be modified by computing quantum indices, using total sales in a chosen base period as weighting coefficients. Other index formulae and more complicated methods of weighting have also been used.

(c) Regarding the national income as a measure of the aggregate output of goods and services, estimates of national income in constant prices may be obtained by combining indices of production for all sectors of the economy, using as weights the net values added of the various industries in the chosen base period.

The three groups of methods indicated will now be discussed in detail.¹ In a later section the measurement of real national income will be investigated in the light of recent discussions on the concept of national income. This will serve as a basis for preliminary proposals to improve international comparability of statistical series showing fluctuations in real income.

II. DEFLATION OF NATIONAL INCOME BY PRICE INDICES

Probably the oldest method used for adjusting the national income 'for changes in the purchasing power of money' consists in deflating the national income in current prices by an appropriate price index. The following table gives a survey of the methods used in ten countries:

¹ Although under certain assumptions the second method may be considered as a refinement of the first, we prefer to treat them as two separate groups. Theoretically at least there is a fourth method, according to which real income is measured on the basis of the contributions of the factors of production, adjusted for price changes. This method may have to be used, for example, in wartime, when the structural changes in the composition of the national product make the application of other methods very difficult.

Methods Used to Deflate National Income

Country	Income Concept	Price Index used as Deflator
Australia .	Domestic national income at factor cost	Index of wholesale prices
Bulgaria .	1. National income at factor cost	Index of cost of living
	2. " " " " "	Index of wholesale prices
Greece .	" " " " "	Index of wholesale prices
India .	" " " " "	Various price indices
Netherlands .	" " " " "	Index of cost of living
Netherlands Indies	" " " " "	Indices of cost of living
Palestine .	" " " " "	Index of wholesale prices
Sweden .	Domestic net national product at market prices	Index of retail prices
Switzerland .	Net national product at market prices less direct taxes	Index of cost of living
United States .	Disposable personal income	Consumers' price index

Sources:

Australia. *Monthly Summary of Australian Conditions*, The National Bank of Australia Ltd., 10th July 1948, p. 4.

Bulgaria. (1) Dr. A. Tchakaloff, *National Income and Outlay of Bulgaria, 1924-1945*, Sofia, 1946, pp. 117-18 (in Bulgarian, with summary in English).

(2) *Le revenu national en Bulgarie, 1936-1945*, Haute Chambre d'Économie Nationale, Sofia, 1947 (in Bulgarian, with summary in French). The author (Mr. A. Kemileff) also presents a second series obtained by deflating the income of the rural population by an index of production costs in agriculture and the income of the urban population by the index of cost of living.

Greece. Estimates prepared by the Supreme Economic Council, Athens.

India. Estimates prepared by the Economic Adviser to the Government of India. Income in agriculture has been deflated by an index of wholesale prices of primary products, income in manufacturing by an index of wholesale prices of industrial products, and income from services by an index of cost-of-living.

Netherlands. *Het Nationale Inkomen van Nederland, 1921-1939*, Central Bureau of Statistics, The Hague, 1948, p. 50. The cost-of-living index includes a component for direct taxes.

Netherlands Indies. Dr. J. J. Polak. 'Het nationale inkomen van Nederlandsch Indië, 1921-1939', *Statistische en Econometrische Onderzoekingen*, Vol. 2, No. 4, December 1947, pp. 104-8. Real income has been measured by deflating the aggregate income of the Europeans, the Chinese (including other alien Asiatics residing in the Indies) and the Indonesians by three different cost-of-living indices and combining the series thus obtained into one.

Palestine. P. J. Loftus, *National Income of Palestine 1945*, p. 14. Net output for domestic market deflated by index of wholesale prices; exports, supplies for H.M. Forces, and deliveries to petroleum concessionaires deflated by index of import prices.

Sweden. Konjunkturinstitutet, Stockholm.

Switzerland. *Das Volkseinkommen der Schweiz*, Eidgenössisches Statistisches Amt, Bern, 1948.

United States. *The Economic Report of the President*, January 1949, *The Annual Economic Review*, p. 104.

In six of the ten countries mentioned the income concept used is national income at factor cost, which in three cases is deflated using an index of cost of living. In the literature it has often been suggested that national income at market prices be used on the ground that since consumer prices include indirect taxes the corresponding income concept also ought to include indirect taxes.

Before discussing in greater detail the various aspects of this problem it may be worth while to investigate the effect of the choice of the income concept upon the statistical series obtained for national income in constant prices. Appendix Table 1 shows for six countries national income at factor cost and national income at market prices. Despite the increase in indirect taxes in many countries as compared to prewar, the percentage deviation between the two income series does not seem to have changed very much. The only notable exception is the United States, where the percentage deviation between the two series is smaller in postwar years than before the war. It should be taken into account that in this case the difference between the two series is in part explained by a statistical discrepancy due to the fact that the two series have been estimated independently.

It may be noted that the definitions of indirect taxes and subsidies are not identical in all countries (see note on the definitions of indirect taxes and subsidies appended to the table). A further investigation would be necessary in each case to determine whether taxes considered as indirect in the index of cost of living have also been defined as indirect in estimating national income at market prices.

It follows from the table that for the countries indicated national income at market prices moves rather closely parallel to national income at factor cost. Consequently, it would not make much difference for the movements of the series obtained if one or the other national income series were deflated by an index of cost of living.

To deflate national income at market prices by an index of cost of living is necessarily a crude procedure. The point is that the index refers to consumers' expenditure on goods and services, which is only one of the components of national expenditure. Government current expenditure on goods and services, and capital formation, constitute other important elements. It

cannot be expected that for all components the same index can be used as a deflator.¹

There are other reasons why an index of cost of living may be inadequate as a deflator:

(a) The composition of the national expenditure may have changed so much, for example, as a consequence of a war, that division by a price index based on prewar weights becomes an unsatisfactory procedure.

(b) The national income may include imputed items, such as farmers' consumption of own produce, which are either not included in the cost of living index or which are only inadequately covered.

(c) Available price indices may relate to specific population groups only, for example, urban wage-earners. For the purpose of deflating consumers' expenditure on goods and services the index must refer to all groups of the population, including entrepreneurs, people in the higher income brackets and the rural population.

(d) The cost-of-living index should not include an allowance for direct taxes.²

Why indices of wholesale prices have sometimes been used as deflators is not quite clear. Probably it is felt that during and after a war, when prices are strictly controlled in combination with rationing, and the computation of indices of cost of living encounters certain well-known difficulties, wholesale price indices give a better indication of the development of price levels. However, the fact that indices of cost of living may be kept down by subsidies is not an argument against their use, since they may be related to income at market prices which includes indirect taxes but excludes subsidies. It is interesting to observe

¹ It is sometimes argued that the index of cost of living may also be used to deflate other components, such as, for example, personal saving, on the ground that consumers have the choice between saving or spending. If one wants to follow the argument the index would have to refer to prices of goods and services consumers would have bought if they had not saved. This index may be very different from the cost of living index.

² The cost-of-living index for the Netherlands is constructed in this way. If prices for consumers' goods and services go up, the average family of the budget inquiry from which the weights for the index have been derived would move into a higher income class if its real income were to remain unchanged. In the higher income bracket direct taxes would be higher owing to the progressivity of the tax. Inclusion of an allowance for direct taxes will thus increase somewhat the fluctuations of the cost-of-living index.

that for a country such as Australia, in which strict price controls and rationing, combined with government subsidies, were maintained during and immediately after the war, it does not make much difference if national income at market prices is used instead of national income at factor cost. The conclusion must be that in this case the index of cost of living is inadequate as a deflator, not because it is based on prices less subsidies, but because it is probably not duly representative of prices of all finished goods and services.

III. MEASURING THE COMPONENTS OF THE NATIONAL EXPENDITURE IN CONSTANT PRICES

National income may be expressed in constant prices by adjusting each of the components of the national expenditure for price fluctuations. From a theoretical point of view this procedure may be more satisfactory than any other method used. We will come back to this point in Section V.

Few countries have applied the method and the information about the techniques used is usually brief. In Denmark (domestic) gross national product has been expressed in prices of 1935 by the following method.¹ Consumers' expenditure and government expenditure on goods and services have been deflated by the cost-of-living index, construction by an index of building costs, and outlay on machinery by an appropriate wholesale price index. The exports surplus of goods when positive has been deflated by a wholesale price index of exports, and when negative by a wholesale price index for imports. Net receipts from freight have been deflated by an index of freight rates. Deflating of net interest and dividends received from abroad was not necessary, since the item does not appear in domestic gross national product.

It may be argued that in an expenditure breakdown the net foreign investment component should be deflated by an index of import prices instead of by an export price index. The point will be taken up again in Section V.

In the United Kingdom consumers' expenditure has been expressed in constant prices by expressing each of its components in constant prices and combining the series thus obtained

¹ *Nationalproduktet og Nationalindkomsten 1930-1946*, Copenhagen, 1948, Chap. VI, pp. 153-69.

into a quantum-index, using estimates of the value of consumption in the base year as weights. Sometimes a more complicated formula for a quantum-index has been used. However, it is desirable that any formula used fulfills the criterion of additivity, i.e. that the weighted sum of the quantum-indices for all components equals the quantum-index for consumers' expenditure on goods and services as a whole.¹ The simple base weighted aggregative quantity index satisfies this criterion.

Estimates of domestic capital formation based on a quantity index are available for Sweden.

Government expenditure on goods and services is usually difficult to deflate. Whereas government expenditure on goods may, at least in theory, be deflated by an index of prices, government outlay on salaries is usually deflated by an index of salary rates of government employees, thus implying the assumption that the productivity of labour has not changed.

Estimates of consumers' expenditure on goods and services, expressed in constant prices, have also been prepared for France and Sweden. Available estimates for Czechoslovakia refer to the Czech lands only, excluding Slovakia.

In the expenditure breakdown all items are usually expressed at market prices, i.e. including indirect taxes but excluding subsidies. It is possible to define all expenditure items *ex* indirect taxes less subsidies, and if this is done the aggregate national expenditure will be equal to national income at factor cost. If national expenditure at factor cost is expressed in constant prices the result is not necessarily the same as when national income at market prices is adjusted for price fluctuations. The differences are easily explained by the unequal incidence of indirect taxes less subsidies upon the various goods and services entering into the national expenditure.

It is easier to express gross capital formation in constant prices than net capital formation, which is equal to the gross concept less replacement investment. It is usually not known, and may even not be feasible to establish, what capital goods are meant for replacement and what part of capital formation is meant

¹ J. R. N. Stone draws attention to this point (cf. 'The Measurement of National Income and Expenditure', *Economic Journal*, Vol. 57, No. 227, September 1947, pp. 272-98). It appears from this article (cf. pp. 287-88) that the indices of prices and quantities used in the British White Papers on National Income and Expenditure previously were 'ideal' index numbers. From 1946 on, base-weighted quantity indices have been used to satisfy the criterion of additivity.

for new investment. The reason is that these concepts are essentially macro-economic.

The best procedure for all practical purposes probably is to consider total depreciation allowances broken down by industrial sectors, to adjust them for replacement values if this has not been the basis of valuation, and to deflate by price indices of capital goods for each separate industrial sector.

IV. MEASURING REAL NATIONAL INCOME AS A COMBINED INDEX OF THE OUTPUT OF GOODS AND SERVICES

Many authors have attempted to measure real national income on the basis of indices of agricultural and industrial production and similar data for the service industries and other branches of the economy, including the government sector and the net return from investments abroad. The indices for separate sectors may be combined into a general index, using the net values added in the chosen base period as weights. However, other systems of weighting have also been applied. Statistical practices in various countries differ widely, and it may be doubted whether the methods used are always consistent in themselves. In *Argentina*¹ indices of production were used for agriculture and mining, but for manufacturing an index of employment was used, changes in productivity thus being neglected. Services of the government in the non-business sector are measured by the total number of government employees, and a similar method has been followed with respect to the personal services. The services of banks and other financial intermediaries have been left out. The assumption has been made that the volume of their services moves parallel to the combined volume index of all other branches. In general, the indices for the various industries have been weighted according to the values of the output in the base year (1935). For trade, the gross profit margin was chosen, and for the government sector and other service sectors the total payroll.

The index of real national income computed by Dr. Kiranoff for *Bulgaria*² is a combined index, obtained from indices of agricultural production, mining and manufacturing. As the out-

¹ *La Renta Nacional de la Republica Argentina*, Banco Central de la Republica Argentina, Departamento de Investigaciones Economicas, Buenos Aires, 1946.

² Dr. P. Kiranoff, *Le revenu national en Bulgarie*, Sofia, 1946.

put of small industries and handicrafts was difficult to measure, the index for this group was assumed to have remained constant (the index of manufacturing also did not fluctuate very much during the war years). For all other branches, i.e. transport, communications, trade, government and income from capital, it was assumed that the index of the volume of services rendered had fluctuated parallel to the combined index of agricultural and industrial production.

Estimates of real national income for *China*, prepared by Dr. Pao San Ou,¹ are based on indices of production for agriculture, manufacturing and mining, and similar data for transportation. For the government non-business sector, education, banking, insurance and personal services the index is based on the number of people employed without adjustments for changes in productivity.

In *Hungary* estimates of real national income were derived from indexes of production, each product being weighted by the average price in the base period.² Manufacturing output, however, was weighted according to the net value added in the base period. With respect to handicrafts and domestic industry, the assumption was made that output varied in proportion to the combined value of agricultural output, mining and manufacturing. For transport, total number of ton-kilometres was used as an index. The contribution of commerce to real national income was estimated on the basis of the quantity of goods passing through trade channels, and this was derived from indices of output of agriculture, mining and manufacturing industry and imports of finished goods. Finally, it was believed necessary to take into account the price-increasing effect of indirect taxes. To this end the percentage of such taxes in the total nominal value of the production of consumers' goods in the base year was obtained and added to the corresponding volume indexes for all years. Services rendered by dwellings were estimated on the basis of the number of dwelling units, using the aggregate rental value as weighting coefficient. The volume of domestic work was supposed to have remained constant. Items of the balance of payments entering into the national

¹ Dr. Pao San Ou, *National Income of China, 1933, 1936 and 1946*, Social Sciences Study Papers, No. 1, Institute of Social Sciences, Academia Sinica, Nanking.

² Matolcsy, M. and Varga, S., *The National Income of Hungary, 1924/25-1936/37* (translated into English by L. Schweng). London, 1938.

income, viz. personal remittances received from abroad and net dividends and interest received from abroad (actually a negative item), were in the prewar period included in the real income without any revision for changes in the price level.

In *Norway*¹ real national income has been estimated by deflating the net value added for each branch of industry. For agriculture the gross value of the output has been deflated by expressing all quantities in prices of the base year (1939). Output in the form of improvements of new land and construction of agricultural buildings (positive items), and depreciation allowances for buildings and machinery (a negative item), have been deflated by an index of prices of agricultural property; all other output and costs in agriculture by the index of wholesale prices. For manufacturing and handicrafts the index of industrial production has been used to measure the changes in real income since the base year. For building activity the index of employment has been used without regard to the decrease in productivity of labour during the war years. Income from shipping earned in foreign exchange, and similar income from other services rendered to foreign countries, have been deflated by an index of import prices, on the ground that such returns may be used to finance imports. However, net dividends and interest payable abroad were deflated by an index of wholesale prices.

Income in retail trade has been deflated by an index of retail prices, and income in wholesale trade by an index of wholesale prices.

Income in banking and insurance has been deflated by the index of cost of living, assuming that wages and salaries have fluctuated parallel to this index and that the productivity of labour remained unchanged.

Income of hotels, restaurants, etc., has been deflated by the index of cost of living.

Rental income has been deflated by the index of rents. The net value added of government services outside government enterprises is measured by the total payroll, which was deflated by an index of wage and salary rates. For other services the index of cost of living has been used.

For *Palestine*² the output of the exports industries has been

¹ *Nasjonalinntekten i Norge 1935-1943*, Central Bureau of Statistics, Oslo, 1946.

² P. J. Loftus, *National Income of Palestine 1945*, Jerusalem, 1948.

adjusted taking into account changes in the terms of trade of the country. Therefore the value figures for the exports industries were deflated by the index of import unit values instead of by an index of prices of goods exported. For all other industries the net value added figures were deflated by an index of wholesale prices.

The following preliminary conclusions seem to follow from the above survey of methods used in various countries to approach real national income from the output side:

1. Output of individual branches of industry is usually measured on the basis of indices of production. Sometimes net value added or other value figures, deflated by a price index, have been used, assuming that the figures thus obtained represent indices of the volume of the output.¹

2. For the government non-business sector, education, personal services, and sometimes also for other branches of industry, employment is taken as an index of the volume of output, changes in productivity thus being neglected.

3. Statistical practices with respect to the deflation of the export surplus, of net income from investments abroad, and other items of the international balance of payments differ widely. There is no generally adopted principle for the treatment of these items.

4. The net values added of the various branches of industry in the base period are usually adopted as weighting coefficients, but sometimes other value figures are used to combine the indices of output for separate branches of industry into the index of real national income.

5. The classifications used include industries producing intermediate products and industries producing final goods. When indices of output for both groups of industries are incorporated into the index of real national income, technical progress as

¹ This assumption is, in general, not fulfilled. Net value added per unit of output fluctuates because the prices of the products and of the raw materials used up fluctuate, and because the quantity of raw materials used up per unit of output may change owing to technological progress and other factors. There is thus no simple price index to deflate a series of net values added. Another method would consist in deflating the value of the output by an index of the prices of the commodities produced, and to subtract the values of the raw materials used up deflated by an index of the prices of those materials. It can easily be seen that the method would thus be identical to the method by which the values of all final goods and services entering into the national expenditure are deflated and added up, and the value of imports, deflated by an index of import prices, is deducted.

reflected in a decreased use of raw materials and semi-manufactured products per unit of output of final goods may not be duly taken into account.

V. THE VALUATION OF NATIONAL INCOME

In this section the concept of real national income will be investigated in greater detail. Such an enquiry is believed to be necessary in the interest of obtaining a theoretical basis for the measurement of real national income. In the next section rules will be suggested for the statistical evaluation of real national income with a view to promoting international comparability in this field.

Recent discussions on the valuation of social income¹ have necessarily a bearing also on the problems involved in the measurement of real income. They center on the problem of whether national income should be interpreted as a measure of social welfare or as a measure of productivity, and what the basis of the valuation should be in either case. It is now agreed that if national income is conceived of as a measure of social welfare, it should not be limited to consumers' goods alone. The net additions to the stock of capital goods are to be included, and they should be valued on the basis of the discounted yields in terms of finished goods. Statisticians usually assume that this relationship is reflected by actual market prices.

The results of governmental activities, outside the sphere of public utilities, are not so easy to handle. Since in general there exist no market prices for the services provided by government, they are usually valued at what they cost. Differences of statistical treatment result from differences in the interpretation of the nature of the public services. In many estimates of national income the government is not considered as a producer, but as the final buyer of goods and services provided on behalf of the community.² Consequently, in the national expenditure account

¹ S. Kuznets, 'On the Valuation of Social Income', *Economica*, February 1948, pp. 1-16; May 1948, pp. 116-31.

J. R. Hicks, 'The Valuation of the Social Income: A Comment on Professor Kuznets' Reflections', *Economica*, August 1948, pp. 163-72.

² This is also the point of view adopted by the Subcommittee on National Income Statistics of the League of Nations Committee of Statistical Experts. Cf. *Measurement of National Income and the Construction of Social Accounts*, Studies and Reports on Statistical Methods, No. 7, United Nations, Geneva, 1947.

all public current expenditure on goods and services appears as outlay on final goods and services. According to the other approach, which has been defended by Professor Kuznets, a distinction is made between government outlay on intermediate goods and services and government outlay on final goods and services. In the national expenditure account only the latter appears as a separate item, since the former is already included in the value of all other final goods and services sold on the market. The numerical discrepancy between the two methods is usually very considerable. According to the first method the social income equals: all private incomes plus indirect taxes less subsidies less government transfer payments (pensions, interest on war debts, etc.). According to the second method and following Professor Kuznets, the social income equals all private incomes less direct taxes plus all final public services at cost.

The total obtained according to the first method equals what is usually termed the national income at market prices. It is worthwhile to note that the second method does *not* lead to what is commonly called the national income at factor cost.

If the national income is conceived of as a measure of the aggregate welfare enjoyed by a nation to the extent that this is determined by the output of economic goods and services, then the second method seems to offer the appropriate approach to this concept. However, it requires the solution of the difficult problem of developing criteria for distinguishing between government intermediate and government final services. For a broad group of government activities it may not be too difficult to establish criteria acceptable to statisticians, but the difficulty is that there remains a large area where any decision is necessarily arbitrary. Experience shows that in those countries where the method has been used the conventions adopted differ widely. The problem of allocation is also difficult, because it presents itself every year and thus requires new decisions to be made when the government assumes new forms of responsibility. The procedures adopted affect not only the level, but also the fluctuations of the national income totals obtained.

The other point deals with the controversy over social income as a welfare concept and as a measure of the productivity of the economy. Professor Hicks has set forth that the two concepts do not necessarily lead to the same statistical totals, but according to Professor Kuznets the two must necessarily be equal. The

reason for this identity is in principle very simple: There is no other criterion for productivity than the satisfaction derived by final consumers. Following the usual way of reasoning the marginal productivity of the factors of production must equal their supply price, which, as Professor Kuznets has remarked, equals the payments to factors, excluding direct taxes, but including whatever final services may be provided free by public agencies. Thus national income as a measure of productivity equals all private incomes less direct taxes plus government final services, which equals the total for national income as a measure of social welfare. Professor Hicks, on the contrary, claims that the welfare measure and the productivity measure may be different and even that the productivity measure is not unique. This he explains by criticizing Professor Kuznets' thesis that the supply price of factors of production is determined by payments excluding direct taxes but including government final services rendered free and transfers. The main argument is that there are 'indivisible' or 'unallocable' final services which cannot be considered as part of the supply price of factors.

Whatever the outcome of the theoretical discussion may be, experience shows that for all practical purposes statisticians prefer to compute either national income at market prices or the factor cost concept, or both.

Great also is the weight of practical considerations if national income must be evaluated in constant prices. The attempt to adhere strictly to the view that national income as a measure of welfare must be equal to national income as a measure of productivity would eliminate certain series which are considered useful for purposes of economic analysis.

Summarizing recent developments it may be stated that at least two different approaches to the concept of national income in constant prices may be distinguished, which do not necessarily have to lead to identical results.

According to the first method national income expressed in constant prices is regarded as an index of production extended to cover all output of goods and services in the economy. In its simplest form the index is built up out of separate indices for the various branches of economic activity, combined into a general index using the net values added in the base period as weighting coefficients. In this form the method may be used to measure short-term fluctuations in real national income. For

the measurement of fluctuations over a longer period the method cannot be very accurate, since in general it does not sufficiently take into account structural changes which may result, for example, in a smaller volume of raw materials or semi-finished products being required per unit of final output, or a larger volume of transportation services being needed to produce the same quantity of final output. This deficiency in the method may be remedied, however, by replacing the indices of production for separate branches of economic activity by the figures that are obtained if for each industry the value of its output and the value of the materials used up in the productive process are deflated by suitable price index numbers, and the latter series subtracted from the former. Since for each intermediate industry the value of its output would cancel against the value of the materials used up in the next higher industry (apart from changes in business inventories), the result is the same as if only all output of final goods and services had been deflated.

The method is thus almost identical to the result obtained if the components of national expenditure, i.e. consumers' expenditure on goods and services, and public and private capital formation are expressed in constant prices. The procedure would not eliminate all conceptual difficulties. Deflating government current expenditure on goods and services by an index of prices leaves still unsolved the problem of the distinction between government intermediate and final services. If, as is often done, estimates of national income in constant prices are used for intertemporal comparisons of welfare, then it is essential that government intermediate services be eliminated, since otherwise the results obtained may easily not agree with the general consensus concerning changes in welfare in the country concerned.

So far the discussion in Section V has been limited to the case of a closed economy. In the case of an open economy the problem arises of how to deflate the net foreign investment component in the national expenditure account.¹ If national income in constant prices is conceived of as the national product expressed in constant prices, then it seems appropriate to deflate

¹ In the national expenditure account unilateral transactions such as aid received from abroad are often treated like other imports. If this is done the account shows the export surplus of goods and services as a separate component instead of net foreign investment. This does not in principle make any difference for the problem of deflation discussed here.

exports by an index of export prices and imports by an index of import prices. If, however, real national income is approached entirely from the expenditure side, then it seems more appropriate to consider exports as a means for paying for present or future imports, and in the expenditure account they should, therefore, be deflated by an index of import prices. A similar reasoning may be applied to the 'invisible' items in the balance of payments.

VI. PROPOSALS FOR THE MEASUREMENT OF REAL NATIONAL INCOME

A satisfactory solution of the problem of how to express national income in constant prices cannot easily be established. For practical purposes two methods are available. Estimates of real national income may be obtained by combining indices of production for all branches of economic activity, subject, if necessary, to further refinements, or they may be obtained by expressing the various components of national expenditure in constant prices. Which method is the most promising for practical purposes depends on the nature of available statistics. It is often felt that the first method is more useful for practical purposes, since in general more statistics are available on the volume of production in various industries than on final outlay on goods and services. In the opinion of the author attempts to approach the real national income from the expenditure side should, where possible, be made, since they are most useful for purposes of economic analysis and very informative as to the exact meaning of the figures.

The methods actually used for expressing the components of national expenditure in constant prices have often to be considered as a compromise, and it is unavoidable that the techniques applied for the various components are not consistent.¹ For practical purposes the following rules may be adopted:

(a) Consumers' expenditure on goods and services may be expressed in constant prices by expressing all quantities concerned in values of the chosen base period. Sometimes, and particularly if important changes in the structural pattern of

¹ This logical inconsistency of our methods also explains why it is impossible to deflate all the items in the social accounts and still arrive at accounts which balance. This conditions would be fulfilled if our methods for deflating obeyed theoretical criteria strictly.

consumers' expenditure have occurred, it may be necessary to use more complicated formulae.

(b) Government current expenditure on goods and services may be deflated as follows: For total wages and salaries of government personnel an index of salary rates may be used, and if possible an attempt should also be made to allow for changes in labor productivity. For government outlay on commodities a special price index should, if possible, be constructed.

(c) Gross and net domestic capital formation may be deflated using a suitable price index, or by expressing all quantities in prices of the chosen base period. Special methods may have to be used to express public capital formation in constant prices.

(d) Net foreign investment, whether positive or negative, may be deflated by an index of import prices, because it is the return in goods and services received from abroad that measures the contribution to social welfare. For certain purposes it may be desirable to measure the volume of output for exports irrespective of the return in goods received from abroad. Total exports of goods and services may then have to be deflated by an index of export prices. However, net interest and dividends and other income received from abroad – whether positive or negative – should probably always be deflated by an index of import prices.

A discussion of the conceptual problems that arise in defining the various components of the national expenditure is beyond the scope of this paper. For those problems reference is made to the existing literature.¹ Imputed items of income and expenditure such as farmers' consumption of own produce and imputed banking services rendered free, the problems arising in defining and measuring capital formation and government current expenditure on goods and services, and many other problems have a bearing also on the methods used for measuring national income in constant prices.

A few words may finally be said about the reliability of the estimates obtained. Certain countries (Ireland, Sweden, the Netherlands) have adopted the practice of classifying the estimates of the components of national income into groups, indicating their probable margins of error. A similar practice may

¹ (a) Cf. Report of the Subcommittee on National Income Statistics of the League of Nations Committee of Statistical Experts.

(b) *National Income Statistics of Various Countries 1938-1947*, Statistical Office of the United Nations, January 1949.

be used also when estimates of real national income are compiled. The problem is more complicated in this particular field, since the margins of error of the series obtained are effected also by the adequacy of the price indices used as deflators or other procedures used. In addition there is the conceptual problem that in presenting figures on real income the problem of the distinction between government intermediate and final services cannot be disregarded. The best practical recommendation in this case seems to be that adequate qualifications should be attached to the figures as a warning against possible misinterpretation of the series.

APPENDIX

TABLE 1

National Income at Market Prices as Per Cent of National Income at Factor Cost

	1938	1946	1947	1948
<i>Australia</i> ¹ [in mill. of £ (A)]:				
1. Domestic national income at market prices	904	1,534	1,807	..
2. Domestic national income at factor cost	814	1,359	1,635	..
3. 1. as per cent of 2.	110.6	112.9	110.5	..
<i>Belgium</i> [in mill. of francs]:				
1. National income at market prices	69,560	209,600	241,230	253,090
2. National income at factor cost	64,000	198,400	225,950	235,300
3. 1. as per cent of 2.	108.7	105.6	106.8	107.6
<i>Canada</i> [in mill. of \$ (C)]:				
1. National income at market prices	4,623	11,026	12,589	14,517
2. National income at factor cost	3,986	9,765	10,989	12,796
3. 1. as per cent of 2.	116.0	112.9	114.6	113.4
<i>Denmark</i> :				
1. Domestic national income at market prices	6,822	14,379	15,612	16,956
2. Domestic national income at factor cost	6,460	13,349	14,585	15,776
3. 1. as per cent of 2.	105.6	107.7	107.0	107.5
<i>New Zealand</i> ² [in mill. of £ (NZ)]:				
1. National income at market prices	211.3	406.1	460.0	..
2. National income at factor cost	193.0	378.0	422.0	..
3. 1. as per cent of 2.	109.5	107.4	109.0	..
<i>Norway</i> ³ [in mill. of kroner]:				
1. National income at market prices	3,976	7,860	8,983	9,542
2. National income at factor cost	3,741	6,992	8,143	8,750
3. 1. as per cent of 2.	106.3	112.4	110.3	109.1
<i>United Kingdom</i> [in mill. of £]:				
1. National income at market prices	5,281	9,417	10,194	11,325
2. National income at factor cost	4,640	8,111	8,725	9,675
3. 1. as per cent of 2.	113.8	116.1	116.8	117.1
<i>United States</i> ⁴ [in mill. of US \$]:				
1. National income at market prices	76,691	197,440	218,337	240,400
2. National income at factor cost	67,375	179,289	202,500	224,400
3. 1. as per cent of 2.	113.8	110.1	107.8	107.1

Notes:

¹ Fiscal years starting 1st July.

² Fiscal years starting 1st April.

³ Housewives excluded.

⁴ The difference between national income at market prices and national income at factor cost is equal to indirect taxes less subsidies minus current surplus of government enterprises plus business transfer payments plus the statistical discrepancy. It is not possible to indicate which part of this statistical discrepancy, which amounted to respectively -91, 979, -3,389 and -4,400 million dollars, should be allocated to each of the income totals.

Sources:

Australia. *National Income and Expenditure, 1947-1948*, p. 8.

Belgium. Estimates by F. Baudhuin.

Canada. *National Accounts, Income and Expenditure, 1938-1947*, p. 16 for years 1938-46. *National Accounts, Income and Expenditure, 1947-1948*, revised, p. 2 for years 1947-48.

Denmark. *Statistisk Aarbog, 1948*, Table 242 for years 1938 and 1946. *Danmarks Nationalbudget, 1949*, pp. 90 and 99 for years 1947-48.

New Zealand. *Official Estimates of National Income, 1938-39 to 1947-48*, Supplement to June 1948 issue of *Monthly Abstract of Statistics*, p. 3.

Norway. *Nasjonalbudsjettet, 1948*, pp. 5 and 6 for the year 1938. *Nasjonalbudsjettet, 1949*, pp. 108 and 133 for the years 1946-48.

United Kingdom. *National Income and Expenditure of the United Kingdom, 1946-1948*, p. 3.

United States. *Survey of Current Business*, July 1948, p. 16 for the years 1938-47. *Survey of Current Business*, February 1949, p. 10.

Note on the definitions of indirect taxes and subsidies:

Australia. Indirect taxes: Includes payroll tax, lottery taxes, war damage insurance premiums, employers' contributions to Queensland Unemployment Insurance Fund. Excludes real estate taxes. Subsidies: Includes capital subsidies.

New Zealand. Indirect taxes: Excludes real estate tax. Subsidies: Excludes capital subsidies.

Norway. Indirect taxes: Includes fees paid by business enterprises, excludes real estate taxes. Subsidies: Excludes capital subsidies.

United Kingdom. Indirect taxes: Includes employers' contributions to social insurance. Export duties are included in national income at factor cost. Subsidies: Includes capital subsidies.

United States. Indirect taxes: Includes surplus of government enterprises. Subsidies: Includes deficit of government enterprises.

TABLE 2

Estimates of National Income in Current and in Constant Prices¹

	Argentina ²		Austria ³		Bulgaria ⁴	
	Current prices	1935 prices	1937 prices		Current prices	1939 prices
	Million pesos		Million schillings		1,000 million leva	
1938 .	8,857	8,070	6,000		..	..
1939 .	9,294	8,630	..		56.9	56.9
1940 .	9,424	8,620	..		67.1	53.4
1941 .	10,458	9,490	..		89.4	57.9
1942 .	11,914	9,730	..		121.8	56.7
1943 .	12,718	9,680	..		161.5	53.4
1944 .	14,295	10,300	..		250.0	49.3
1945 .	15,055	10,000	..		285.8	45.4
1946 .	..	..	3,000		334.0	50.1
	Denmark ⁵ , ⁶		France ⁷		Greece ⁸	
	Current prices	1935 prices	Current prices	1938 prices	Current prices	1938-39 prices
	Million kroner		1,000 million francs		1,000 mill. drachmas	
1938 .	6,722	6,180	403	403	61.3	61.3
1939 .	7,325	6,529	..	..	63.8	63.8
1940 .	7,869	5,968	..	..	..	..
1941 .	8,858	5,347	..	..	..	..
1942 .	9,935	5,458	..	..	..	..
1943 .	11,212	6,033	..	..	..	..
1944 .	12,543	6,606	..	..	..	..
1945 .	12,398	6,087	..	..	..	..
1946 .	14,329	6,700	2,718	333	5,940	34.9
1947 .	15,612	..	3,704	360	7,342	39.5
1948 .	16,956	..	5,886	393	..	..

¹ Figures relate to national income at factor cost unless otherwise stated.

² Gross national product at market prices. Source: *La Renta Nacional de la Republica Argentina*, Banco Central, Buenos Aires, 1946.

³ Source: *Monatsbericht des Oesterreichischen Institutes fuer Wirtschaftsforschung*, 15th May 1947. Figure for 1938 refers to 1937.

⁴ Source: *Bulletin Mensuel de la Direction Générale de la Statistique*, No. 2-3, 1947, p. 57.

⁵ Sources: 1938-46: *Statistisk Aarbog*, 1948, Tables 241 and 242; 1947-48: *Danmarks Nationalbudget for Aaret 1949*, p. 99.

⁶ National income at market prices.

⁷ Gross national product at market prices, excluding the government sector. Source: Commissariat Général du Plan.

⁸ Unofficial estimates.

	Hungary ^{1, 2}		Italy ⁴	Norway ^{1, 5}		Palestine ⁶	
	Current prices	1938-39 prices	1938 prices	Current prices	1939 prices	Current prices	1939 prices
	Million pengos		1,000 mill. lire	Million kroner		Million £ (P)	
1938 .	5,192	5,192	116.6	4,509	4,669	..	..
1939 .	5,940	5,506	..	4,895	4,895	30.2	30.2
1940 .	6,743	5,312	..	5,138 ⁸	4,301 ⁸	..	..
1941 .	8,311	5,171	..	6,563	4,434	..	..
1942 .	10,348	5,467	..	6,567	4,248	75.9	..
1943 .	15,431	5,214	..	6,677	4,121	90.0	..
1944 .	..	..	82.9	6,400	4,000	123.0	..
1945 .	..	2,541	68.4	6,100	3,800	141.9	44.7
1946 .	11,816 ⁹	3,137	..	7,860 ⁷	..	..	..
1947 .	..	..	81.2	8,983	..	..	..
1948 .	..	..	..	9,542	..	..	..

	Philippines ^{1, 9}		Switzerland ¹⁰		Turkey ^{1, 11}	
	Current prices	1938 prices	Current prices	1938 prices	Current prices	1947 prices
	Million pesos		Million francs		Million £(T)	
1938 .	994	994	9,046	8,314	..	..
1939	9,225	8,409	..	..
1940	9,678	8,028	..	..
1941	10,634	7,198	..	..
1942	11,523	7,176	..	..
1943	12,381	7,409	5,500	6,000
1944	12,824	7,378	..	..
1945	13,824	7,939	5,740	5,800
1946 .	2,759	863	15,658	8,806	..	..
1947	17,413	9,689	..	..

¹ National income at market prices.

² Figures relate to twelve months beginning 1st July of year stated. Source: *Economic Statistical Bulletin*, Budapest, May 1947.

³ In million forints. Source: Hungarian Institute for Economic Research.

⁴ Sources: *Congiuntura Economica*, March 1946, and Banca Nazionale del Lavoro, *Quarterly Review*, No. 4, January 1948, pp. 260-63.

⁵ Sources: 1938-39: *Nasjonalbudsjettet*, 1948, p. 6; 1940-45: *Om nasjonalbudsjettet*, 1947, p. 89; 1946-48: *Nasjonalbudsjettet*, 1949, p. 108.

⁶ Figures for 1940-45 excluding customs duties. Estimates for 1944 and 1945 very rough.

⁷ Excludes unpaid services of housewives, which are included in the figures for previous years.

⁸ P. J. Loftus, *National Income of Palestine*, 1944; idem 1945, p. 17.

⁹ Source: *Report and Recommendations of the Joint Philippine-American Finance Commission*, Manila, 1947.

¹⁰ Source: *Das Volkseinkommen der Schweiz, 1938-1947*, Bern, 1948, p. 18. Figures in 1938 prices are based on national income at market prices less direct taxes.

¹¹ Source: Sefik Bilkur, *National Income of Turkey*, Ankara, 1949, p. 40.

SOME PROBLEMS IN THE MEASUREMENT OF CHANGES IN THE REAL GEOGRAPHICAL PRODUCT

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I. INTRODUCTION

THIS paper represents the firstfruits of work being done jointly by C. F. Carter, Richard Stone and myself, and I would like to start by acknowledging their assistance in what is really a joint undertaking; I would also like to start by apologizing to the audience for the fact that these firstfruits have been picked before they were fully ripe. We hope that the discussion which follows their premature exhibition at this meeting will help us to improve the quality of the main crop when it finally appears.

Our objective may perhaps most easily be visualized as the extension of our index of industrial production,¹ on an annual basis, to cover the whole economy. More precisely, we shall be aiming at measuring in real terms the year-to-year movements in total output of the United Kingdom – what is sometimes called the ‘geographical product’; we include in the field, by a fairly natural extension, the output of the British shipping industry, but we exclude all dividends etc. received from overseas.

It is perhaps useful to remind ourselves of the general principles of that technique, and to show how it is related to national income statistics. I shall take for illustration a simple case in which all problems connected with the government and with foreign trade are assumed away.

The procedure is, then, to take the gross geographical product at factor cost for the base year and divide it up between the various ‘industries’ in which it was created. As we shall see later, the ‘industries’ used for this purpose may not be defined in quite the same way as for other purposes, but that need not detain us here. Opposite each industry we put what I shall call its ‘net output’ in the base year. Strictly speaking, this figure is not the ‘true’ net output (i.e. the sum of the incomes accruing to the factors of production engaged in the industry), because

¹ See *The Measurement of Production Movements* (1948), by C. F. Carter, W. B. Reddaway and Richard Stone. This publication is the first to appear in the Monograph series of the University of Cambridge Department of Applied Economics, which is published by the Cambridge University Press.

it includes depreciation; on the other hand, it is smaller than the 'net output' as defined for Census of Production purposes (i.e. selling value of output less cost of materials etc.), because *all* outside purchases are deducted, such as payments for advertising or business travel, instead of only a limited class. By definition, the sum of the net outputs of all industries on this basis must equal the gross geographical product at factor cost.

For each industry we then need one or more indicators, which ideally should reflect, in real terms, the proportionate change in the industry's net output between the base year and any other. Multiplying the base-year net output by the output relative we then get the net output of later years at base-year prices, and can prepare a table of this kind:

Industry	Indicator(s) used	Net output at 1946 prices			
		1946	1947	1948	1949
Cotton spinning	Weight of single yarn produced (5 types)				
Cotton doubling	Weight of yarn doubled				
Cotton weaving	Linear yardage of cloth woven				

We can add up the figures in each column for any desired group of industries, and turn them into index numbers if we prefer that form, as well as computing a total.

I would like to stress that in principle it is changes in *net* output, measured at base-year prices, which the indicators should show. We frequently use what is really a measure of changes in *gross* output, but strictly speaking that is only justified on the assumption that each unit of output will always imply a constant quantity of outside purchases; frequently this is approximately true – output and input are in a constant relationship – but there are some important exceptions, particularly in regard to the input of certain services purchased from outside the industry (e.g. advertising), and there may be major changes in technique.

Logically, I think the best approach to the problem is that described by Geary¹, according to which both the output and

¹ See 'The Concept of Net Volume of Output, with Special Reference to Irish Data', by R. C. Geary in *Journal of the Royal Statistical Society*, Pts. III-IV, 1944, pp. 251-9.

the input of each industry in any year are recorded at base-year prices (or estimated on that basis), and the difference gives the required net output. This has the advantage of making it clear that the result is logically the same, whether you work from the net outputs of all the various industries (including those making intermediate products), or whether you work from the expenditure side of the national income tables, and express consumption and capital formation at base-year prices. For if we have recorded the total output of (say) coal in 1948 on the output side, and deducted the coal used by all the various industries on the input side, we must be left with the coal bought by domestic consumers and the coal added to stock at all stages,¹ i.e. with the coal which should go into the final expenditure table. Furthermore, the valuation should be the same, e.g. it will include transport and distribution charges, since the value added on this account will have appeared as part of the net output of the transport and distributive trades, or of the industries supplying them with materials.

Needless to say we cannot in practice apply Geary's technique to many of the industries, but it is very important to be clear about the logical principles when making the inevitable approximations. This applies particularly to agriculture, where changes in technique have been very substantial, and which we hope to treat on Geary's lines; this will ensure, for example, that an increased output of artificial fertilizers does not have an exaggerated effect on our total index – first in the fertilizer industry, and secondly through higher agricultural yields, with no offsetting allowance for increased *input* per ton of potatoes. It is also important in suggesting that certain 'industries' which supply their output wholly to others should be grouped with the latter as a single industry, so that there is no need for any measure of output at the intermediate stage.

Having briefly indicated the relationship of our approach to that which starts from the figures of final expenditure, I would like to emphasize that neither can claim any monopoly of virtue. It is highly desirable that both should be undertaken, not merely so as to have an independent check on the grand aggregate, but also because the methods automatically give figures for quite

¹ Plus, in the case of an open system, the coal exported. If we are dealing with an open system, the volume of consumption plus capital formation will move differently from that of output if the terms of trade change or dividends etc. from abroad move differently from output.

different sectors of the total – one dividing it by ‘industries of origin’, the other by types of final expenditure – and both sets are useful. The greatest advantage of the industry approach is probably that there are more and better quantity data for basic products than for final expenditure, so that the area in which we are dependent on uncertain price adjustments is considerably reduced.

Finally, I would like to conclude this section by emphasizing the care with which any figures of ‘real national output’ must be used in drawing any deductions about welfare. The limitations are, of course, the same as when one starts from the final expenditure table – with the addition, in the case of an open system, of the fact that allowance must be made for changes in the terms of trade and in income from overseas. This may perhaps serve as one example of the general proposition that the figures only aim at measuring *changes in the flow of goods and services becoming available to the community through its economic activity*; they make no allowance for changes in the power of those goods and services to generate welfare, or of other sources (or destroyers) of welfare. Thus if a cold winter increases the need for fuel to maintain our homes at the old temperature, and that fuel is produced, the volume of output (and consumption) will be shown as rising, even though welfare is not increased; similarly if the international situation inspires us to build more battleships and air-raid shelters, or the fear of plague leads to the increased use of vaccines. We have thought it useful to measure the expenditure, at base-year prices, on certain large and fluctuating items (notably defence), which may perhaps be regarded as ‘regrettable necessities’ rather than as contributing to welfare; the subtraction of these from the total may be regarded as the first step towards assessing changes in welfare. But the list makes no claim to be exhaustive, even of those items which might be considered to fall *wholly* into this category, and it does not attempt to deal with those for which a variable part should be so classed (e.g. that part of travel which represents the ‘necessary evil’ of travel to and from work); and, of course, there will always remain both the difficulty that the prices of a particular base year have no real claim to reflect welfare, and all the incommensurable problems of changes in needs, tastes, etc.

II. SOME LOGICAL PROBLEMS

In this section I wish to examine the general scheme of things outlined above with particular reference to a number of problems which cost us a good deal of anxious thought. On looking back it seems that much of this perplexity should have been avoided, since the answers appear relatively obvious when once the general key has been found; but it may be useful to go over the ground, and it may be that there are objections to these 'obvious' answers which we have not perceived.

The first set of problems is concerned with *changes in external circumstances*. An example will perhaps serve best to show the issues at stake. If there is a bad winter the amount of repair work which is needed will increase (e.g. mending burst pipes, replacing roof tiles, etc.). Is it right that the output of the repairers should be shown as having increased, and, still more, is it right that the total output should show a rise? On the other hand, the bad winter will probably reduce the output of some industries (e.g. agriculture) 'through no fault of their own'; is it right that their output should be shown as having fallen? The upshot of our discussions seemed to be quite clearly that we must stick to the plain facts about output *and input* for each of the industries, and then add up the results to give the figures for net output as a whole. Quite apart from any question of the desirability of doing something else, which is very doubtful, it seemed clearly impracticable. Thus the result of the bad winter would be inextricably embodied in the figures of agricultural output, and it would be impossible to adjust these to the yields which might have been expected if the winter had been 'normal'. Similarly, the output of the repairing industry would almost inevitably include the amount of work done to make good the ravages of the abnormal weather in the same figure as the 'normal' work of repair. The same thing is true whether the change in the external circumstances acts on the *supply* side (as with agriculture) or on the *demand* side (as with the repairs). It also seems to be irrelevant whether the change is truly external or uncontrollable, as with the temperature, or whether it is to some extent within man's control, as in the case of a slump or an inflation. We pass no moral judgement on any industry when we record the fact that its output has risen or fallen – the reason may be the weather, the industriousness of the

workers, the lack of demand, or anything else.

It is perhaps worth stressing that the effects of these external changes may influence either the *output* side of an industry's account or the *input*, and a proper measure of changes in net output should take account of both. Thus if bad weather is causing the farmers' tractors to need a lot of repairs, the input of repair services into the agricultural industry should be shown as increasing, and the net output reduced in consequence, just as effectively as if the yield of the harvest had been reduced. An important consequence of this is that we should not have any feeling of repugnance against entering the increased output of repair services by the repairers as a rise in the national output; our statistics, if properly compiled, will not show any net rise in aggregate output merely because our tractors are breaking down more frequently.

Perhaps it is useful to sum up our conclusions on this topic by saying that changes, whether external or internal, which affect *the ease of producing an output* will get their effect incorporated automatically into the index both for the industry in question and for the aggregate; this is, of course, as it should be if the index is to measure the volume of goods and services produced. On the other hand, those changes which affect *our needs in our capacity as consumers* are ignored by the index, and if we want to make any judgements about changes in welfare these must be allowed for on the other side of the account. For example, if the output of coal for domestic purposes is increased we can say nothing about welfare on the fuel side unless we first consider whether more fuel was needed to give the same temperature in the homes (e.g. because of a cold winter, or because windows have been broken by bombing), or whether the extra fuel will, in fact, have led to a desirable increase in warmth. Sometimes opinions will differ about what is desirable – e.g. the increased output (and consumption) of ice cream in a heat wave may be regarded by some as 'a good thing' or 'a positive contribution to welfare', but by others as a regrettable necessity.

This brings me fairly naturally to a second set of problems, which are concerned with the decision as to what is to be regarded as the unit of output in particular cases. The one which actually featured most largely in our discussions was the case of medical services. Here again our difficulties partly arose out of an instinctive objection to saying that the national output

increases when there is an epidemic, which would be the consequence of taking something analogous to 'a doctor's visit' as the unit of output (at least if the epidemic were confined to dependants). It seems clear, however, by analogy with the cases discussed above, that this sort of instinctive objection must simply be overruled. We cannot expect our index to reflect this kind of 'welfare' consideration – it is fundamentally concerned with those of the market-place. The proper procedure seems to be to consider what the unit of output is for which the doctor is normally paid. In the olden days this would almost certainly have been something analogous to 'a doctor's visit' or 'an operation performed'; we would have got the same result as with the house repairers discussed above. On the other hand, it is conceivable that the 'normal contract' between the doctor and the patient would provide that there was to be a fixed payment for whatever medical attention the patient in fact needed in the year, so that the unit of output could be thought of as 'a year's attention' (presumably of a given standard), and the effect of the epidemic on the medical industry would be analogous to the effect of a bad winter on the farmers – i.e. it increases the difficulty of producing the same output. In a community with a national health service which is run rather on this principle there might seem to be a fairly strong argument in favour of adopting this view – not because it coincides more nearly with 'welfare' considerations, but because it corresponds to what happens in the market-place. It has the somewhat paradoxical result that the output of medical services might even be shown as *falling* in an epidemic (because of the inevitable reduction in the standard of attention received by patients) whilst the output of medicines would almost certainly be shown as increasing, since in this case the payment to the industry is proportional to the quantity delivered.

Even worse difficulties arise, as we shall see later, in connexion with some of the government's activities, but it seems best to postpone consideration of those to subsequent sections.

Another important consideration in measuring the output of certain industries is that it may in principle need to be recorded under a large number of sub-categories. This is clearly true in the case of different qualities of an article, but it may also be important in such respects as geographical position. If we consider the industries of coal production, transportation and dis-

tribution together, it is not sufficient to measure their output simply in terms of the number of tons of coal delivered to users. A ton delivered to a destination far from the pits should be considered more valuable than one delivered within a radius of a mile, and we should have separate indicators for the two kinds. In practice, by adopting the 'net output' approach and treating the three industries separately, we automatically allow for the extra value due to extra transportation; the danger then becomes that with a change in circumstances we may attach *too much* significance to the carrying of coal about the countryside. If, for example, the Kent coalfield were closed and an equivalent amount of coal for use in the surrounding district had in consequence to be mined elsewhere and transported many miles, our index would probably show no change in the output of coal, and a rise for the railways. To avert this spurious rise in the total index one would presumably have to treat the various coalfields as separate industries, in which case the Kent one would be found to have a higher net output per ton than (say) the Midlands, because its geographical position in a coal-importing region gives it a higher pithead price. A shift of production from Kent to the Midlands would then be recorded as a fall in the index for coalmining as a whole, if one were computed, and this would offset the rise in the railways' index.

So far as *quality changes* in general are concerned, presumably the logical procedure is to try to value the goods or services actually produced by the industry in (say) 1949 at the price per unit which they would have had if that quality had been on sale in the base year. The difficulties here seem to be more practical than logical, though the latter are far from negligible.¹

The next group of problems are those associated with *changes in technique*, taken in a wide sense to cover switches between the use by an industry of external specialists to do such things as repair and maintenance work, accounting, etc., as well as the more obvious ones of changes in processes. A particularly important one, taken over the long period, has been the progressive shift from the use of power generated in one way or another in the factory to the purchase of electricity from the main suppliers; this normally gets recorded in an index of production as a rise in output, because the power produced in

¹ The importance of the subject of quality changes must not, of course, be judged by the length of the discussion of it in this paper.

factories was not regarded as part of any industry's output, whilst the electricity industry naturally showed a very big rise.

In principle it seems clear that this group of problems is virtually eliminated by Geary's rule of measuring both output and input of each industry. It does not then matter how much the methods within the industry may change; we have recorded the value (at base-year prices) of what went in and what came out, and the difference is the required figure for net output. There are, however, obvious difficulties about doing this in practice, and there is consequently a real danger that a comparison between a very complex economy and a comparatively simple one will be unduly favourable to the former; I do not intend to discuss these problems further.

Finally, one ought to list here the problems connected with *new products, changes in taste*, etc. This part of the field, however, is a well-trodden one, and I have little to add to the familiar discussion. It is, however, perhaps worth noting that when one is dealing with *net* output some of the problems appear in a rather extreme form. Thus it is possible that the materials etc. used by an industry in 1949 may, when valued at base-year prices, exceed the value of the 1949 output, also valued at base-year prices, so that the net output at base-year prices will be shown as negative. This might happen, for example, if the base-year was one in which corn prices were far too high relatively to those of pork to justify the use of corn for fattening hogs; in a later year the supply of corn might become abundant and its price fall, so that the farmer in fact made a very good profit out of feeding it to the hogs, but the net output at base-year prices might be negative. This result may seem paradoxical, but it is the right one, at least for the economy as a whole¹: it provides an offset to the fact that the large output of corn in the later year has been valued at the high price of the base year, even though its only use is for feeding to animals.

In certain cases it is probably legitimate to escape the paradoxical results attained by a strict application of the rule about revaluing output and input at base-year prices, by treating the work as though it were done on commission by a contractor. Thus if the base year is one in which it was considered desirable

¹ It may sometimes produce rather absurd-looking results for particular industries, or even industry groups, but this is unavoidable if we have a single base year.

to build air-raid shelters, or to convert furnaces from oil burning to coal, we should not regard the work of demolition or reconversion as producing negative net output if done in a later year when circumstances had changed and made this appear desirable. Our 'input' (an undemolished shelter or a coal-burning furnace) is worth more when valued at base-year prices than our output (a cleared site or an oil-burning furnace), but so long as the input items are not being currently produced in the later year it seems legitimate to value the adaptation of old fixed capital on a 'work done' basis, using base-year prices for similar work.

III. PROBLEMS CONNECTED WITH THE GOVERNMENT: GENERAL REVIEW

The activities of the government are always difficult to fit into an analysis based essentially on 'market' concepts, because in so many respects it behaves in ways which do not conform to market usage.

The first point to note is that all our valuations in connexion with private industries should be done at factor cost. There are various problems of allocation arising out of this, even with ordinary cash subsidies and taxes, but I do not intend to explore them here; nor do I intend to argue the case for factor-cost measurement in this connexion – it is regularly adopted for index numbers of production, at least so far as major taxes and subsidies are concerned (alcohol, tobacco, sugar, etc.).

Taxes, subsidies and other purely 'financial' operations by governments do not seem to require any further consideration for our index. The troublesome problems arise in connexion with those of its activities which involve the employment of factors of production and the performing of services. How far are these part of the national output, and how should they be measured?

We have not finished our consideration of this very complicated matter, but it seems as though the best procedure is to think of the government's activities as divided into four categories. (There are, of course, some hybrids, but I do not intend to discuss that problem.)

(a) The first category covers those which are virtually commercial operations – e.g. the running of nationalized industries and the work of importing (and sometimes wholesale distribu-

tion) of food or materials; these are treated on the same principles as private industries, and indeed our index numbers will usually cover a certain operation – e.g. gas production, road transport, the importing of timber – whether it is performed by the government or by private enterprise. In a period when many of these activities have in fact been transferred from government to private operation or *vice versa* the results on any other basis would be of little value, and the most natural indicators measure changes in the volume of output irrespective of who is responsible for it.

(b) The second category includes those in which the government is supplying a service free, or at a nominal charge, which is designed to assist a particular industry or small group of industries. An obvious example is the agricultural advice service, but many other government activities can be brought under this heading by a slight extension of the basic concept – e.g. the work of the export promotion department represents (free) assistance to the ‘industry’ of export distribution, the rationing and price control departments may be regarded as helping the relevant sections of the distributive trades to distribute goods in an acceptable way, etc. In most of these cases the best procedure seems to be to group the relevant section of the government (e.g. its agricultural advice service) with the ordinary industry (e.g. agriculture) to give a composite industry, the function of which is to produce the goods or services usually associated with the ordinary industry (e.g. agricultural products). As is explained below, this procedure is not only logically satisfactory, but also renders a great number of statistical problems more easy to solve.

(c) The third type of government activity is similar to the second in that it represents the provision of (free) service to business, but in this case the service cannot be regarded as confined to a small group of industries, even if we are prepared to define ‘industries’ in unusual ways. The government employment exchanges are a good example (though they might possibly be regarded as a service to the job-seekers as individuals rather than to industry), and the supply of general business information probably belongs here, too. This category is best treated by a modified version of the method which is applied under (b), taking ‘all industry’ as the partner instead of a particular one.

(d) Fourthly, we have those government activities which are not primarily designed to assist *industry* (i.e. the production of goods and services), but which represent services supplied to *individuals as consumers* (e.g. state education) or to *the community as a whole* (e.g. defence). The second of these sub-groups might in a sense be held to be also a service to 'industry in general' and so akin to the items included under (c): it occupies an intermediate position between services to 'producers' and services to 'consumers', in that it represents the work of providing the indispensable framework without which the producers cannot properly produce and the consumers cannot properly enjoy their consumption. For our purpose, however, it seems clearly better to include them in this category, if only because we are building up our total of the gross national product by adding up the net outputs (at base-year prices) of all the various industries, including those making intermediate products. If we wanted to treat defence as a sort of intermediate product rather than as a final good we would have to eliminate not merely the *net* output of the 'Armed Forces' industry, but also their purchases of materials etc., which will have been included in the net output of countless industries as the work of making steel, mining coal, filling shells, etc.; some, indeed, will consist of imports, which have not been included anywhere (unless we consider the production of an equivalent value of exports as 'representing' them). All these bits cannot possibly be disentangled from the other output of each industry concerned, and the proper procedure seems clearly to include the (net) output of both the 'Armed Forces' industry and the 'state education' industry in just the same way as that of the laundry industry or any other.

Having arrived at our total for the gross national product in each year (measured at base-year prices) we can then, if we like, see what is left after we have deducted the *expenditure*, also at base-year prices, on whatever we choose to regard as 'overheads on the economy', 'regrettable necessities' or some other term which we may use to denote things which I would personally regard as a rather peculiar set of final goods.

For attempts to assess changes in welfare it is, of course, very important to make this deduction in the case of regrettable necessities on which expenditure *fluctuates* a great deal, such as defence; on the other hand, the year-to-year movements in

the residue will be much the same, whether or not we deduct the expenditure on the more stable kinds, such as 'central administration' (including tax collection). This makes it less important to attempt a complete list of the regrettable necessities, some of which are not in the government sphere at all (e.g. travel to work); but one must frankly recognize that even a complete elimination of regrettable necessities (supposing it were possible to agree on a list of them) would only be a first step towards a measurement of welfare changes, for reasons discussed in Section I.

It is worth emphasizing, however, that welfare measurements are by no means the only purposes for which these statistics are useful. Thus a study of the gross national product, including the 'output' of defence etc., is helpful as a guide to what might happen under different circumstances – e.g. if the need for expenditure on defence were increased or reduced; the total is, indeed, a significant measure of the *output* of the community.

IV. GOVERNMENT SERVICE TO INDUSTRY

In this section I wish to consider in more detail the treatment of government activities which consist in the provision of (free) services to industry. I shall start with the category in which the service is confined to one industry, taking as an example the agricultural advisory service.

Logically, this situation should probably be regarded as containing two industries – the *advisory service*, whose output is measured in terms of questions answered, lectures given, consultations held, etc., and whose input consists of paper, printing work, business travel, etc.; and *agriculture proper*, whose output consists of farm products, and whose input includes, besides fertilizers etc., the 'products' of the advisory service. Agriculture proper is given in each year a subsidy equal to the value of the *gross* output of the advisory service; the subsidy is not, of course, given in cash, but we can think of it as an ordinary cash subsidy which is used to 'purchase' the advice.

For our purposes all valuations have to be made at base-year factor cost, and the market prices of farm products in that year should therefore be raised by the equivalent of this subsidy in kind, spread over the various products in whatever way is considered most appropriate. The valuation of the 'advice' (both

for output and input) would be on the basis of the cost per lecture etc. to the government in the base year.

Taking the two industries separately, therefore, we ought to measure their net outputs (at base-year prices) in any year as the difference between gross output and input, computed on the following basis:

(a) *Agriculture*

Gross output – tonnages of various products multiplied by the sum of the base-year *price* and the base year *subsidy* (expressed per ton).

Input – number of lectures etc. received in the year, multiplied by base-year cost per lecture *plus* quantities of fertilizers etc. used in the year, multiplied by base-year prices.

(b) *Advisory service*

Gross output – number of lectures etc. given in the year, multiplied by base-year cost per lecture.

Input – tonnage of paper used, number of railway journeys made, etc., valued at base year prices.

If we take the two industries together the lectures etc. will always cancel out, and the net output of the combined industry, measured at base-year prices, will be the gross output of agriculture, valued as above, *less* the fertilizers etc. and the input into the advisory service. Thus we escape the awkward problem of measuring (in quantitative terms) the movements in the output of the advisory service, both for the agricultural index and the 'government advice' index. In the language of bridge, we have not merely 'discarded a loser on a loser', so as to reduce the number of losers by one, but have got rid of both; the only drawback is that we cannot then produce separate statistics for (say) 'agriculture proper' and 'government operations'.

As an approximation we can simplify the above procedure even further. It may be that the input of materials into the advice service can be regarded as moving approximately in proportion to the gross output of agriculture, or is quantitatively of little importance. In that case we would get the same answer by taking the subsidy as equal to the *net* output of the advice service in the base year (instead of the total cost of running it), and ignore the paper, railways journeys, etc., throughout. We shall then be using a lower set of (factor-cost) prices for valuing

the output of agricultural products, but shall not be deducting anything for the input into the advisory service.

This approximation simplifies the computation greatly. For the *weight* of the combined industry we have only to add the net output of the advice service in the base year to that of agriculture, computed without any allowance for the advice, either as input or as a subsidy. The *indicator* of quantitative movements from year to year is the same for the combined industry as it would be for agriculture alone, ignoring the advice.¹

Before passing on to consider the case of a service to 'industry in general' it is worth pausing to see some of the implications of this procedure and how far it gives a different answer from other possible ones. Firstly, the fact that we pay no heed to year-to-year changes in the output of the advice service does not mean that we regard them as 'making no difference' or 'valueless'. An increase in the amount of advice given may be extremely valuable in that it enables the farmers to increase their output (or cut down their input - e.g. of tractor fuel or spare parts). But this will show itself in the (net) output recorded for agriculture, and it would be wrong to count *both* the increased lectures *and* the extra potatoes which they 'produced'.

Secondly, the fact that we add this 'subsidy in kind' to the weight attached to agricultural output in the base year is a reflection of the fact that more factors of production were really involved in turning it out than were employed in agriculture proper.

Finally, we shall get a materially different answer for year-to-year movements by following this procedure rather than what might be called the normal 'index of production technique' in years when the 'output' of the advice service moves very differently from that of agriculture proper. If we had treated them as two separate industries, each with its own weight and its own indicator of movements in (gross) output, then a doubling of the advice service would have been recorded as a doubling of its own output, as well as being reflected in its effect on the output of agriculture; unless we are optimistic enough to think that the output of agriculture would be doubled, we would have

¹ Strictly speaking, this is not quite true unless the subsidy is spread proportionally over the different products, but the procedure is the same once the base-year prices (including subsidy) have been established.

exaggerated the rise in total output by ignoring the fact that the big rise in the advice industry implied a higher ratio of input to output for agriculture. Even if we had taken account of inputs actually *paid for*, we should not have escaped this trap.

An extension of this example to the case of controls (e.g. clothes rationing) illustrates important principles. We intend to combine the operations of the rationing department with those of the clothing distributive trades as jointly performing the service of distributing clothing to the consumer. Our base year will be one when rationing was in force, and the weight of the combined industry will be the sum of the net outputs of the rationing department and the clothing distributors; the indicator will be the 'volume' of clothing distributed. When we perform the calculation for 1949 the indicator will take no heed of the fact that rationing ceased in that year; is it really right that the complete disappearance of one part of the combined industry should leave no trace on the index, and that 'output per head' in the combined industry should show a large rise? And does this imply that the rationing department was a mere parasite?

The answers to these questions are clear if we remember the argument in Section II about changes in external circumstances. Thanks to changes outside the sphere of clothes distribution (notably the disinflation policy) the task of distributing clothing in an orderly manner has become easier and rationing is no longer required. The service of distribution is (in this case) performed at least as satisfactorily since rationing was abolished as it had been before,¹ so that the distributive trade is able to produce as large a gross output as before, without the input of services from the rationing department. It deserves no 'credit' for this result, any more than the ex-rationers do, but it is quite true that real (net) output per head in the combined industry has risen. The rationing department was no more a parasite in the years when external conditions made it necessary than the breakdown gang is when fog causes a railway accident – even though both can be dispensed with under suitable circumstances.

How, then, do we deal with government activities designed

¹ This is, of course, a crucial point. The indicator used is not an ideal one, because it takes no heed of any changes in the quality of the service rendered, but for clothes that is approximately what we want for comparisons between periods before and after the abolition of rationing. In the case of sweets the argument would not apply.

to help industry in general, for which the employment exchanges may serve as an example?

Logically the problem is similar to the one discussed above.

(a) The employment exchanges should in principle be treated as a separate industry, with a *gross output* in any year equal to the number of placings, valued at base-year cost per placing, and an *input* of paper, telephone services, etc., also valued at base-year prices.

(b) For the base year we should allocate this gross output of placings between the using industries in whatever way we think most appropriate; we should then regard these as receiving a subsidy of that amount, thereby raising the factor-cost price of their output, and also spending that amount on input of exchange services.

(c) For later years the *output* of all using industries should be valued at the enhanced prices found under (b), and we should allocate the gross output of the employment exchanges found for that year under (a) as inputs of using industries, taking the proportions considered most appropriate to the year in question.

For employment exchanges it might be possible to follow out this procedure in full, if only approximately. It would, however, require a lot of work for a relatively small reward, and with other services it would involve a great many arbitrary decisions. Two stages of approximation to the result can be used, as follows.

As a first simplification we can decide not to allocate the use of the exchanges between industries, either in the base year or later.¹ We still include a series to represent their net output in each year, and we still regard the value of their gross output in the base year as both a subsidy to other industries and an element in their input. But we simply add the subsidy as a bulk item at the bottom of the table – ‘addition for undervaluation due to non-allocation of subsidies in kind’ – and we also subtract the input as a bulk item at the bottom – ‘deduction for unallocated input of government services to industry’. In the base year the addition and deduction are equal, being the gross value of the services in both cases. In later years, however, the *addition* is a constant percentage of the total net output at base-year prices, because we simply assumed that spreading the sub-

¹ More strictly, we assume that in the base year it is proportional to the net output of each industry.

sidy would have raised these prices by X per cent; whilst the *deduction* represents the value (at base-year prices) of the services rendered in the year in question. If the exchanges were abolished the series for their own net output would, of course, fall to zero, and so would the deduction for input into other industries, but the addition for under-assessment of base-year prices would remain. The *direct* effect of the abolition would thus be a *rise* in total output corresponding with the fact that paper, telephone facilities, etc., would no longer be absorbed as input into the employment exchange industry – quite apart from the possibility of the staff and buildings being put to alternative uses. The *indirect* effect would doubtless be a fall in the output of other industries, and we may perhaps assume that this would outweigh the direct rise.¹ The important point for us is that these indirect effects will be reflected automatically in the statistics, and we need not be alarmed at the apparently paradoxical direct ones.

So far as the final figure is concerned we could get the same answer by taking the net output of ordinary industries (ignoring the employment exchanges etc.), *adding* X per cent to represent the subsidy in kind, and *subtracting* the input of materials into the employment exchanges, all values being at base-year prices; for in the procedure described above we included the *net* output of the exchanges in the body of the table, and deducted their *gross* output at the bottom, so that on balance we were subtracting their input.

If the input of materials etc. into the employment exchange service is always small, or can be regarded as moving roughly proportionately to the gross national product, then a second simplification is possible: we would get approximately the same result by reducing X appropriately and ignoring the employment exchanges altogether so far as year-to-year movements are concerned. This is, of course, just what was described for the single-industry case, but taking 'industry as a whole' for the partner instead of agriculture. We add the base-year net output of the exchanges to that of everything else, and then calculate year-to-year movements without any reference to them. If we are only interested in producing index numbers, then we need not even compute their base-year net output.

This simplification of the task is so attractive that it is as well

¹ Or private exchanges might be developed to replace the public ones.

to review once again the assumptions which justify it. Firstly, the service(s) in question must be essentially for the benefit of *industry*, not final consumers or the community as a whole. Secondly, the benefits must be of such a widespread kind that we cannot find a significantly better basis for allocating them between industries than in proportion to net output. And thirdly, the situation must be such that we shall not make a significant error by assuming the input of materials etc. into these services to move proportionately to output as a whole – the test of ‘significance’ depending, of course, both on the magnitude of the input and the possible error in the assumed movement.

V. GOVERNMENT ‘FINAL’ SERVICES

In this section I wish to make a few remarks about the government’s output of services, which are not designed as assistance to producers, but rather as providing for the needs of final consumers or of the community as a whole. I do not pretend to have touched on more than a small part of the subject.

Perhaps the most important point is that in this field there is no escape from the fact that we must measure the year-to-year changes in the net output, and must do so in real terms. With the services assisting industry it was always possible to avoid measuring their gross output, because this was, *ex hypothesi*, part of the input into some other industry and so would cancel out on aggregation; and to a reasonable approximation we can usually avoid measuring their *input*, too, as explained above. But with final services this device is not available: the most we can say is that where the service falls into the class of ‘regrettable necessities’ (e.g. defence), one of the things we may want to do is to deduct the net output of the ‘Armed Forces’ industry (as well as its purchases of materials etc.) in order to arrive at a figure for the residue of the gross national product which is available for other purposes.

With some of these services it is very difficult to decide what the unit is in terms of which output should be measured, quite apart from the difficulty of actually doing it. The Armed Forces is perhaps the most difficult case, and a brief note of some of our attempts to grapple with this may be helpful.

We rejected the idea that the output of an army was zero,

either in peacetime or wartime: the element of truth underlying that concept seems to be met by our supplementary calculation of the total national product *less* the (gross) cost of regrettable necessities.

We also rejected any idea of measuring output in terms of the amount of training done, manoeuvres executed, etc. Apart from anything else this would imply that an experienced army which was (rightly) held to need less of this practice had a lower output than one made up of raw recruits. Looked at *ex post*, if the political weather had stayed fair this might seem plausible on the grounds that the only output was the increased (human) capital; but it does not take enough account of the army's main function of giving security.

We tried to conceive of an output as measured in terms of 'units of security' created, and became embroiled once more in the question whether to allow for changes in external circumstances – since the periods with large armies were usually those in which the feeling of security was at its lowest. There was also the problem whether to allow for reactions on the armies of potential enemies.

In the end we concluded that the right logical course was to visualize the sort of contract under which the services of the Armed Forces would be bought by the community if the 'industry' were run on a commercial basis. This seems right because the main body of the calculations relates to market phenomena, and the awkward parts should be made to conform as far as possible to the same general principles.

In applying this principle we have to recognize that the main objective of the purchaser would be to obtain immediate security, and that what he needs for this is mainly a stand-by service, in the same way as with a fire brigade. The contract may provide for *some* extra payment if fires are actually put out, but probably this would merely cover out-of-pocket expenses (and so not affect net output); essentially, the service provided is that of keeping a fire-fighting force of given size and efficiency 'on tap', and our job is to measure the size and efficiency of the force. Training and practice operations etc. can largely be ignored, except in so far as they are reflected in efficiency.

A further important point is that changes in the political climate would be things which affected the consumer's need for

this service, in the same way as changes in temperature affect his need for coal. If he reacts to these changes by placing larger orders with the industry, we want the figure for its output to rise as soon as the industry responds by keeping a larger force on tap. There is no paradox in recording a high output for the Armed Forces in unsettled times, even if no fighting has been done, and the output of security seems very low.

Two other points deserve mention. Firstly, it seems right to treat capital formation within the Armed Forces industry on much the same lines as in others. An increase in the stock of battleships is part of final output – but it will have been recorded elsewhere as the output of naval shipbuilding, steel production, etc., so does not require any entry under the Armed Forces industry. An increase in *human* capital, in the shape of trained men, is not normally counted as part of the output of an industry and so may be ignored here. (We can, however, soften the impact of this decision by counting the recruit under training as making a significant contribution to the effective size of the stand-by force.)

Secondly, in measuring the effective size of the stand-by force, and so the output of the industry, we ought clearly to allow for the stock of equipment as well as the number of men. The computational problems are very difficult, especially with laid-up and obsolescent ships, etc., but the principle is clear.

This section does not pretend to give concrete answers to specific problems of measurement. It is concerned with the necessary preliminary stage of seeing what concept we should be thinking of when we search for an (inevitably approximate) indicator.

VI. SOME NOTES ON MEASUREMENT PROBLEMS

This section makes even less claim to completeness than the one before. It is included mainly to enable me to stress the point which has impressed itself most firmly on all three of us: that although the logical order of exposition is to start by examining the concepts which one wants to measure, and then pass to the means of doing so, yet in practical applications the two processes are completely intertwined. The reaction of practicality and the nature of the data on objectives appears both in the overall design of the work – as we saw, for example, in the

discussion about changes in external circumstances and regrettable necessities – and also in the decisions about particular problems. On this latter point we may first note that it is seldom possible to measure changes in the *input* into the various industries, so that we usually have to fall back on the assumption that the volume of input moves proportionally to the volume of output. Even over a short period, however, there are two important cases where this assumption is unjustifiable, even as an approximation, and for these we have to arrange a different technique. The first is the very varying amounts of input of government services, which are likely to be *reduced* as the industry's output rises (e.g. with rationing); this problem is dodged by the methods described in Section IV. The second is the varying ratio of input to output in agriculture, owing to varying imports of feedingstuffs etc.; this problem is far worse if we treat the sections of agriculture separately, and we therefore deal with agriculture as a whole on the 'ring fence' principle, valuing the things which come out and the things which go in, all at base-year prices.

A few examples from particular industries may help to illustrate the problems which arise and to emphasize that the fundamental difficulty is to find indicators of year-to-year movements.

First there is the problem of the government services to industry, discussed above. Logically we can either treat the agricultural advisory service as a separate industry, or combine it with agriculture. Our industry breakdown would probably be more interesting if we treated them as separate industries, but each of the separate figures would be much less reliable than the combined one, and the process would involve more work. These considerations are decisive, so that in this case the nature of the data virtually determines the industry breakdown.

Secondly we get a similar problem with various private industries supplying intermediate services. The function of dealing in livestock or farm seeds for example is perhaps most naturally thought of as part of the distributive trades. But if we include them there we should need some indicator of the changes in the quantity handled, since clearly this activity of buying from one agriculturist to sell to another is not particularly correlated with the ordinary work of distributing consumer goods. This is a very difficult problem to solve, and so far as the aggregate is concerned it is all to no purpose; for the services of these inter-

mediaries are an input item to the agricultural industry (which we take as a single unit), so that the volume used in each year must be subtracted there. It is far simpler, therefore, to merge these dealers with agriculture and measure the output and input into the combined industry in each year.

A third way in which the computational or measurement problems may be simplified by a suitable definition of 'industries' may be seen from the case of the accountancy profession. The 'natural' definition of industries would treat this as a separate industry, to be included in the sub-group of professional services. That procedure would, however, involve several difficult operations, including:

(a) Computing a weight (base-year net output) for the accountancy industry.

(b) Devising indicators for measuring year-to-year changes in the volume of work done by it.

(c) Ensuring that the base-year net outputs of other industries were arrived at *after* deducting payments for accountancy services.

(d) Allowing for year-to-year changes in the amount of accountancy purchased per unit of output in all other industries (since for most of these the basic indicator will relate to gross output, which will be assumed to bear a constant ratio to net output -- a particularly doubtful assumption for accountancy when industries are being nationalized and perhaps relying more on internal auditors).

These problems can be largely avoided by a device similar to that used with government services to industry in general. Virtually all the (gross) output of the accountancy industry is input into some other industry, and would therefore cancel out on aggregation, so that its movements (or lack thereof) ought not to have any direct effect on the final aggregate.¹ We ought, strictly speaking, to take account of movements in its *input* in the same way as with the employment exchanges, but this is a quantitatively unimportant point. In effect, therefore, we can dispose of the problem by defining each 'industry' as including not only its ordinary activity, but also whatever accountancy it uses -- whether provided internally or bought from outside.

¹ As with government services, the *indirect* effects are reflected in the output of other industries.

The weight is increased to cover the accountancy (or, in many cases, not reduced to get rid of it), and the output of each 'enlarged' industry is measured by the same indicators as would be used for the industry proper. The paper etc. bought for the accountancy section is assumed to move proportionally with the gross output in the same way as other input items – not a very accurate assumption, but a very unimportant one.

Yet another instance in which the nature of the available indicators determines the procedure may be seen from the case of H.M. Stationery Office. We were just about to debate which of various approaches to adopt for this when we realized that our indicator for the general printing etc. trade and the manufactured stationery trade taken together was to be the consumption of printing and writing paper (other than newsprint). Since the consumption by H.M. Stationery Office was inextricably mixed with that by private firms we had in fact no option but to regard it as part of this composite industry – a very reasonable treatment, since its functions are broadly similar – and regard the other government departments as purchasing its output of printed forms etc.

Perhaps I might conclude this list of examples with one in which the nature of the available indicators will probably cause us to split a part off one industry and attach it to another. This treatment will probably be necessary in dealing with the distributive trades, which own a considerable number of lorries, vans, etc., which they use both for delivering goods to their customers and for collecting some of their incoming supplies. The ordinary 'industrial' approach would treat the operation of these vehicles as part of the distributive trades, and their drivers are classified in those trades. In our case, however, the data which we can use as indicators for the industry of 'goods transport by road' (number of goods vehicles on the road, petrol consumed, etc.) all relate to the *total* activity of transporting goods, whether it is done by the road haulage industry proper or by traders operating their own vehicles. Moreover, on the other side our information about movements in the volume of goods handled by the distributive trades does not distinguish between goods delivered to customers and those taken away, nor yet between those collected by them in their own lorries and those sent to them by public transport of some kind (or by the manufacturers' lorries). In effect, therefore, we

have no option but to regard the work of the distributive trades as divided into two portions – ‘distribution proper’ and ‘delivery (or collection)’ – and add the latter to the road haulage industry. Strictly speaking the latter will, indeed, have gathered to itself the transport of goods by producers as well as by distributors: our approach is necessarily a ‘functional’ one, measuring changes in the amount of certain functions performed (manufacture, transport by road or rail, other distributive services) rather than in the net output of certain groups of establishments.

The above example is typical of the general point that the information available is suitable for measuring changes in the volume of certain activities, no matter who performs them, rather than in the activity of the establishments which are classified to a certain industry. The same thing is usually true with an ordinary index of industrial production; but the problem is much more acute when the index is extended to cover the whole economy, because the various functions are performed in so many alternative and overlapping ways. There is a much less clear-cut division of establishments between the various ‘service’ industries, and a correspondingly looser connexion between movements in the volume of certain functions performed and those in the net output of the establishments in the most nearly corresponding industry.

In itself, the fact that our statistics relate to certain functions or operations rather than to groups of establishments is probably an advantage rather than a disadvantage: they relate more nearly to industries as we would *like* to have them, if it were not for the awkward fact that establishments insist on carrying out overlapping functions. It means, however, that comparisons between many of the group index-numbers and movements in apparently corresponding employment statistics are of very limited value.

VII. CONCLUSIONS

The conclusions of this paper have already emerged in the different sections, but it may be convenient to summarize some of the main features of the treatment proposed here and link these up with other strands of thought in national income methodology.

1. The object of the investigation described is to deflate the gross geographical product at factor cost. This means that the

total weight to be apportioned among the different indicators is the total of factor costs (including profit) and depreciation provisions all defined in the generally accepted way. Our treatment of specific problems, and particularly of government services, does not involve any departure from the ordinary measure of the value of the gross geographical product at factor cost, but only a reapportionment of this total between the different branches of activity.

2. The general point of view is essentially that of Geary (*op. cit.*), in which to measure changes in net output we need in principle indicators of output and also indicators of input. From this it can be seen that since in the aggregate all intermediate products will cancel out, the approach adopted here will in principle be identical with one which aims to reduce final expenditures (measured at factor cost) to terms of constant prices. (To secure this agreement between the two approaches final expenditures must, of course, be defined to exclude those purchases of goods and services by the government which were used to provide assistance to industry, adopting the same definition as in the other approach; and the corresponding 'subsidies in kind' must be allowed for in making the measurements at factor cost.)

3. We take the world as we find it and do not attempt to attach praise or blame for what actually happens, nor, in measuring real product, do we attempt to decide whether or not individuals or the community 'really' want some of the services which in fact get provided. It is recognized, however, that the product total, viewed as a measure of real final expenditure, may for some purposes need to have subtracted from it certain sub-groups of expenditure such as expenditure on maintaining the armed services.

4. The problems considered have been discussed in terms of the state of affairs in the United Kingdom at the present time. An attempt has therefore been made all along to deal with government services in such a way that we may pass from periods of control and back again without distortion. This involves a smudging of the line between private and government activity at many points, but it is thought that the industry groupings which result from our suggestions are in fact more appropriate to contemporary conditions than those which would result from an attempt to keep the two forms of activity separate at every point.

FIRST CONFERENCE OF THE INTERNATIONAL ASSOCIATION FOR RESEARCH IN INCOME AND WEALTH

held at Cambridge 27th August – 3rd September, 1949

LIST OF PAPERS

Papers Discussed at the Meetings

- | | |
|---------------------|--|
| 1. Odd Aukrust | On the theory of social accounting. |
| 2. Odd Aukrust | Recent experiences in the use of social accounting in Norway. |
| 3. Gerhard Colm | Experiences in the use of social accounting in public policy in the United States. |
| 4. J. B. D. Derksen | Intertemporal comparisons of real national income. An international survey. |
| 5. E. F. Jackson | The recent use of social accounting in the United Kingdom. |
| 6. Simon Kuznets | Government product and national income. |
| 7. Erik Lundberg | Recent experiences in the use of social accounting in Sweden. |
| 8. Jan Marczewski | Les expériences récentes de l'emploi de la comptabilité sociale par la politique économique en France. |
| 9. Francois Perroux | Les macrodécisions. |
| 10. V. K. R. V. Rao | Inter-country comparisons of real national income. |
| 11. W. B. Reddaway | Some problems in the measurement of changes in the real geographical product. |
| 12. Milos Stadnik | Socialization and measurement of industry's product. |
| 13. Richard Stone | Functions and criteria of a system of social accounting. |
| 14. G. Stuvcl | Development of stock of capital goods in six countries since 1870. |
| 15. G. Stuvcl | Recent experiences in the use of social accounting in the Netherlands. |

Other Papers made available to the Conference

1. Benedetto Barberi National income and balance of payments.
2. Frau Dr. H. Bartels Social accounts and calculation of national
and Dr. G. Fürst accounts in Germany (Bizonal area).
3. Kjeld Bjerke National income calculated on statistics
of production.
4. Ernest M. Doblin The ratio of income to money supply.
5. Ch. Evelpidi The national income of Greece and its
composition.
6. Antonio Giannone Public expenditure in the national income
of Italy for the years 1938 and 1947.
7. Corrado Gini The valuation of commodities for direct
consumption.
8. Helmut Meinhold Analysis of the national income in
Western Germany.

THE INTERNATIONAL ASSOCIATION FOR RESEARCH IN
INCOME AND WEALTH

BY-LAWS

(as revised and amended in the light of discussion at the meetings of members held at Cambridge in September 1949)

I. FIELDS OF INTEREST AND ACTIVITIES

(a) The fields of interest of the International Association for Research in Income and Wealth shall be the definition and measurement of national income and wealth, social accounting and its use in economic budgeting, international comparisons and aggregations of national income and wealth, problems of statistical methodology connected therewith, and related matters.

(b) The Association will further research in these fields of interest by bringing scholars in the field into closer contact with one another, by the circulation of documents and bibliographical material, by the arrangement of conferences of scholars from time to time, by co-operation with other professional organizations, and by other appropriate means.

II. MEMBERSHIP

(a) The Association shall be a working body whose membership is composed of scholars actively engaged in the fields of interest to the Association, each member participating in his individual capacity.

(b) The members shall consist in the first place of those invited to become members, following the organization meeting of the Association held on 15th September 1947, in Washington D.C. To become a member subsequently a person must be proposed to the Council by two members of the Association, nominated by the Council, and accepted by a majority of the members voting on his candidature. All members shall have an opportunity to vote on such candidates as may be proposed and nominated, and no person shall be elected to membership unless he has been so proposed and so nominated. Members proposing a person for membership who fails of nomination may appeal against the Council's decision at a regular business meeting of the membership.

(c) The Council shall from time to time review the membership of the Association, and if any member shall be deemed by the Council to have ceased to take an active interest in the Association's field of study, the Council shall have the right to recommend to the Association that his membership be terminated.

III. OFFICIAL LANGUAGES

English and French shall be the working languages of the Association. The Association shall not necessarily undertake to issue documents in both languages. The Association shall strive to accommodate any member who is obliged to submit any document in any language other than English or French.

IV. THE COUNCIL

(a) The governing body of the Association shall be a Council consisting of six members elected by ballot and three members co-opted by the elected members, provided always that the retiring Chairman of the Council shall continue to be a member of the Council for the two years following his retirement as Chairman.

(b) The first regular Council shall be elected at the meeting held in the calendar year 1949. Thereafter elections to fill expired terms and other vacancies, if any, shall be held biennially. All nominations and elections of Council members for the second regular Council and thereafter shall be carried out by mail canvass of the Association's membership. Each nomination should be sponsored by two members of the Association and should be sent to the Secretary for submission to the Council not less than two months before the biennial reconstitution of the Council. [Thus the next set of vacancies will fall due on 1st September 1951, and nominations should be with the Secretary by 30th June 1951.] Vacancies which occur at other times than on the expiration of terms should be filled at the following biennial election. A ballot, as described in the annexed statement, shall be used in all elections to fill expired terms and other vacancies.

(c) All elected members of the Council shall serve for six years except that in the first regular Council the two elected members receiving the lowest number of votes shall serve for two years, and the two receiving the next lowest numbers shall serve for four years.

(d) The co-opted members shall be chosen by vote of the elected members and each co-opted member shall serve for two years.

(e) The Chairman of the Council shall serve for a term of two years. The Chairman of the first regular Council shall be the Council member receiving the highest number of additive preferential ballots. The Chairman of each subsequent Council shall be elected by the membership of the Association and the candidates shall be the four members of the Council whose terms have not expired.

(f) No elected member of the Council shall be nominated for re-election at the time of his retirement from the Council.

(g) The Council shall make such regulations as may be necessary for the transaction of its own business. Unless the Council otherwise determines, at all its meetings six shall form a quorum, and all questions shall be decided by a majority vote of those present and voting.

(h) The Council shall appoint from its own membership an executive committee to implement the general policies which it decides upon, and may appoint committees of members of the Association for special purposes. Such committees shall report to the Council.

(i) The Council shall establish and maintain a suitable secretariat, upon such terms as the Council may think fit.

(j) The Council shall make plans and arrangements for meetings of the Association.

(k) The Council shall arrange for such elections and referenda as are required under these By-Laws and, in its discretion, for referenda on other questions.

V. THE SECRETARIAT

Among its duties the secretariat shall, so far as conditions permit and in the discretion of the Council, maintain a bibliographical service, circulate documents among members, issue the proceedings of meetings, and keep the members informed about work in progress and news items of interest to the members.

VI. AMENDMENTS

Amendments to these By-Laws, after having been considered by the Council, may be adopted by approval of a majority of the members voting on the amendment. All members shall have an opportunity to vote on proposed amendments after their consideration by the Council.

Annexe to By-Laws

VOTING PROCEDURE

1. Each voter shall write down the names of all the candidates in order of preference, candidates who are ranked equal being bracketed together.

2. For each voter the most preferred candidate is given a score of one, the next preferred candidate a score of two, and so on, equally ranked candidates being each given a score equal to the mean of the score these candidates would have had if they had been strictly ordered. In this way scores are assigned to all candidates.

3. The resulting scores are summed over all votes and the appropriate number of candidates with the smallest score are declared elected. In the event of ties a random choice between tying candidates is made.

